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PREFACE

About a year and a half ago the University Appointments and Information Board was established. We started with the assurance of co-operation of 10 business houses in the city and today the number is over 100. It was never our expectation that the Board was going to solve completely by means of some magical wand the acute problem of unemployment among educated middle-class Bengalis. That task is a gigantic one and can be successfully achieved by common action boldly taken by various authorities, particularly by the State, for it will involve the consideration of factors of far-reaching importance, both economic and political.

We from the University have, however, to perform our duty. We have to devise a correct system of education which must be well-balanced and help and not hinder our youths in pursuing diverse occupations of life. Such occupations have hitherto been confined mainly to service and some learned professions which are now mostly overcrowded. The vast field of trade, industry and commerce where Bengalis once predominated has to be re-entered by us. The University has been anxious to establish a close contact between its activities

and important business houses in the city. The response we have hitherto received is most encouraging.

One part of our original scheme related to the desirability of organising courses of lectures to be delivered by well-known businessmen of the city enjoying wide practical experience. Such lectures would deal with various problems connected with the industrial development of Bengal and would aim at placing useful information at the disposal of our young men. The present volume contains the first series of the lectures organised by the Board. The response we have received fills us with hopes for future expansion on right lines. I would, however, point out immediately that the list of subjects we have selected is by no means exhaustive. If the present scheme meets the success it deserves, there will be no difficulty in our continuing it in future and in embracing within its scope other important subjects of practical utility. Again, I recognise that some of the topics dealt with by our lecturers are not free from controversy. The opinions expressed by the lecturers are their own and it is conceded that the same problem may be looked upon from different angles of vision. What we want is that such problems as are discussed should be held out before our young men and others interested who would be welcome to consider them critically and offer constructive suggestions, if desired.

It is not suggested for a moment that by merely reading these lectures men will immediately turn into business magnates. We are anxious that our youths should be more serious-minded and better disposed to hard work in practical lines. We can now think of nothing but service and some learned professions as our goal. We hope that by a wide circulation of these lectures, the attention of all concerned, and specially of the student-community, will be attracted and these will help them in exploring the possibilities of finding useful careers in various branches of trade and commerce. While initiating in this humble way this plan for the future good of the youths of the province and for focussing public attention on a matter of vital importance, the University confidently expects that its efforts will be suitably supplemented by other bodies and organisations including the Government so that by means of whole-hearted co-operation we may succeed in ushering in a new era of progress and prosperity for the children of this great province.

Syama Prasad Mookerji

SENATE HOUSE.
May, 1939.

BENGALIS IN COMMERCE AND INDUSTRY

By Sir P. C. Ray

At the outset I must thank Dr. Syamaprasad Mookerjee, Chairman of the Appointments Board, for asking me to say a few words about the position which Bengalis occupy in the sphere of trade, industry and commerce of the province. It is indeed gratifying to find that the University of Calcutta has at last recognised the supreme need of diverting the attention of its products towards industrial and commercial careers. And to one who has during the last half a century tried, in season and out of season, to impress this idea on the people of Bengal this move is a welcome one. I know that the task is an immensely difficult one but when the cause is good success is sure to come, sooner or later.

In order to appreciate the position which the people of the province at present occupy in its commercial and industrial activities I would like to give at first an idea of the position which the Bengalis occupied at the time of early settlement of the East India Company in Bengal. It may not be known to many of you that when Calcutta with two of its adjoining villages was selected as a place of settlement by the English merchants they

took up the task of developing it with the help of the people of the province. The Seths and Bysaks who were the earliest settlers played their part well and contributed their quota in solidly laying the foundation of the commercial capital of India. It is true that to-day when one speaks of Burrabazar one means the Marwari quarters But even seventy years back Burrabazar was a Bengali centre from whence radiated the threads of commerce and industry. Bengali merchants were all-powerful in all important trades such as rice, jute, textiles, sugar, timber, salt, etc. In Radhabazar Street originally all the woollen merchants were Bengalis.

I have referred in my *Autobiography* to an interesting booklet entitled *A short account of the Residents of Calcutta in 1882* by Babu Ananda Krishna Basu. This book contains a list of wealthy men of the town, including residents who became rich by trade and business. I select a few names only (old spelling retained) :—

1. Bysnubdoss Sett—He was an old inhabitant of Calcutta and a virtuous and respectable man and very rich ; he as well as his forefathers were Dewans for the purchase of piece-goods for the Honourable Company ; all the Setts and Busakhs of Calcutta are his kins and relations.

2. Ameerchund Babu—He was first Jumadar of the Export Ware House and then having acquired money by trade became Contractor of

the Honourable Company's merchandise and purchaser of all the goods imported by individuals and thereby earned upwards of a crore of rupees. He was a charitable man and lived at Burrabazar and supported all the Sikhs of his class here.

3. Luksmikant Dhur—He was a very opulent man and Banian to several former Governors and Colonel Clive; he died without issue and was succeeded in his immense fortune by his daughter's son Moha Raja Sookhamoy Roy (who obtained the title of Raja at the time of Marquis of Wellesley and was a Director of the Bank of Bengal).

4. Sobharam Busakh—He was an opulent native of Burrabazar and seller of piece-goods to the Honourable Company and traded in various articles.

5. Ramdulal De Sircar—He was first in the service of Mudunmohun Dutt and acquired almost incredible opulence by serving Messrs. Fairlie & Co., and American Captains as well as by trade on his own account and lived at Simleah in Sootanooty. He began his career as a clerk on Rs. 4 or 5 a month and rose to the position of one of the foremost merchants in Calcutta. He died in 1824, leaving a large fortune of about £400,000.

6. Gobindchund Dhur—He was son of Nilmoney Dhur, Banker, and acquired wealth by serving European Ship Captains.

The most notable feature is that in the above list there occurs the name of only one non-Bengali.

A few decades ago almost all the banians (mutsuddis) of the European Houses were Bengalis. Below is given a list of some of the notable ones :—

Gora Chand Dutta (Crooke Rome & Co.); after his death his son Chandi Dutta entered into partnership with one Chandra Dhar of Chinsurah and carried on the business. Later on one of their sub-agents, Ghursamal Ghanasyamdas, became the banian of the firm—the Bengali losing his ground.

The firm of Prankissen Law & Co. were banians of eight European Houses among others, Graham & Co., Pickford Gordon & Co., Henderson & Co. ; Abhoy Charan Guha son of Shib Ch. Guha was banian of nine Euıopean Houses, *e.g.*, Graham & Co., Pill Jacob, Swiney Kılburn & Co., Sacherstein & Co. ; Lalit Mohan Das (died about 1890) was banian of Geo. Henderson & Co., Chartered Mercantile Bank, Ltd., Rose & Co., and Ralli Bros. ; Dwarka Nath Dutt (as well as his son Dhirendra Nath Dutt) was banian of Ralli Bros. (piece-goods department).

It is of interest to note that " the first Jute Spinning machinery on the Hugly was introduced by George Auckland ; he arrived in Calcutta in 1852-53 where he made the acquaintance of Baboo Bysumber Sen, a native banian (financial agent).***

Here (at Rishra), then, about the middle of 1855, the first Indian machine jute spinning mill was cradled. * * * For three years Auckland carried on the business in company with his native partner." Similarly the first important bank in Calcutta on modern lines, I mean the National Bank of India, was established with the capital and co-operation of Bengali financiers. This bank, the paid-up capital of which at present is £2 millions with a reserve fund which is more than the paid-up capital, was established in 1863, under the name of Calcutta Banking Corporation, which was changed to the present name on March 2, 1864. "The Head Office was at first in Calcutta, but was transferred to London in 1866. As a result of this, the bank lost its predominantly Indian character. It may be recalled in this connection that at the time of transfer, four out of seven directors were Indian, *viz.*, Babu Durga Churn Law, Babu Heeralal Seal, Babu Patit Paban Sein and Maneckje Rustomjee, Esq. Of the two auditors one was a Bengali, Shyama Charan De, Esq."

But when the present system of education was introduced the middle class Bengali was the first to take advantage of it. He at once found that the new knowledge not only benefited him intellectually but opened up new sources of earning with least amount of trouble and without any risk. In those early days it was easy for him to secure a decent clerical post even with very scanty educational

qualifications. Some of his more progressive brethren were fortunate in securing posts in the higher public services, while the boldest of them went a step further and adopted some independent learned professions and were successful, there being few competitors. The result of the new system of education was that even youngmen of business families preferred to abandon family business in favour of service. And while the Bengali showed his apathy and aversion towards a business career this field was being captured by the sturdy sons of other provinces with the consequence that although we call this city of Calcutta as the city of palaces but the palaces are occupied by the Marwaris and the gates are guarded by Rajputs. Similarly a student of economics not conversant with the deeper undercurrent of the economic life of Bengal would exultingly cite the export and import trade returns as supplied by custom house and congratulate the province on its prosperous condition, forgetting all the while that there is a skeleton concealed in the cupboard.

The position which Bengalis occupy to-day in the business of the province can be realised by any of you if you move around the city of Calcutta and its suburbs with your eyes open. On both sides of the Hughli there are numerous jute mills but except one or two none is under the control and management of the Bengalis. One can realise the magnitude of this important industry when one is

told " that more than Rs. 18 crores is invested in the industry " and " the market value of the jute mill shares is nearly Rs. 35 crores or nearly twice the amount of all the capital paid-up." In coal mining industry, another important industry of the province, the Bengalis cut a sorry figure. In this field the Europeans are first and foremost ; among the Indians Gujratis and Marwaris are in the forefront. But like the jute mills industry in the coal mining industry too mining operations on a large scale were carried on by the Europeans in co-operation and with the aid of Bengalis It is interesting to note in this connection that Bengal Coal Co., Ltd., which is one of the important coal concerns, was formed in the year 1843 by Messrs. Gilbert Homfray & Co., and Messrs. Carr Tagore & Co., and this company is the oldest Joint Stock Company in Bengal.

By virtue of protection the sugar industry of India has in recent years made astounding progress. In 1931 when the Tariff Board recommended protection to the sugar industry India had only 32 sugar mills. In 1937-38 the number of mills was 154 and India has practically become self-sufficient in the matter of sugar. Bengal happens to be one of the principal markets of Indian sugar. But it is extremely unfortunate that although Bengal happens to possess a few sugar mills, which are absolutely inadequate to meet the local demands, practically none of these sugar mills

owe their existence to Bengali capital or enterprise.

The cotton mills industry of India got a big impetus when the torch of swadeshism was kindled by Bengal. How the Bengalis have been exploited by the Bombay mill-owners and their patriotism traded upon was admitted by a mill-owner to Mahatma Gandhi when he said that "In the days of Partition we, the mill-owners, fully exploited the Swadeshi movement. When it was at its height, we raised the price of cloth and did even worse things." But what did the Bengalis do? Inspite of having all the natural advantages for establishment of cotton mills industry, the assured "home market" and above all the spirit of swadeshi to act as "tariff wall," we could not till recently make any serious attempt to establish cotton mills. It is true that now Bengal possesses a few cotton mills but they are quite inadequate to meet the enormous demand. The same tale can be told about the salt industry, another protected industry.

Bengal is an agricultural country. The produce of the land—rice, jute, oilseeds, pulses—is mainly controlled by the Marwaris, who would also have taken a large share in the export of hides, had it not been for the fact that their religious prejudices stand in the way. The import trade of Bengal is also, to a large extent, in the hand of Marwaris; not only are they banians of the importing European houses, but between these and actual consumers there is

an interminable series of dealers and middlemen most of whom are not people of the province. Then again I find that although Calcutta happens to be the Headquarters of 3 principal railways of India even the construction and repair works of these railways within the province of Bengal are the monopoly of Cutchis, Gujratis and Punjabis. Even in regard to the construction of the new Howrah Bridge like the Willingdon Bridge, the Bengalis are nowhere. But look at the Marwaris. He is here, there, and everywhere. He finds out by a sort of instinct where money is to be made ; wherever he goes he manages to get a foothold, establishes himself permanently and the local hereditary traders and merchants belonging to Saha and Tili castes gradually disappear.

The two essential elements to ensure success in trade and commerce are sadly lacking in the Bengali character—I mean a spirit of enterprise and a business instinct. On the other hand the Bengali unfortunately has given too wide a scope to idealism at the expense of practicality. The very emotional side of the Bengali stands in the way of his taking up sustained work—requiring life-long devotion to a cause. " The characteristic of heroism," as Emerson has it, " is its persistency. All men have wandering impulses, fits and starts of generosity. But when you have chosen your part, abide by it, and do not try to reconcile yourself with the world." The Bengali is lacking in

patience; he is always after quick results—he is for reaping without sowing. Sensationalism appeals to him more than steady, silent work away from public gaze. He is for the attainment. of his end by "direct action" and quick methods, hence sustained work requiring life-long devotion and unflagging zeal does not appeal to him. In this connection I would like to quote the observations of an eminent ex-pupil of mine, who has thought much about the failure of the Bengalis in business. He says: "I have examined and cross-examined dozens of Marwari businessmen, I have intimate knowledge of their capacities and limitations, as their legal adviser. My very definite opinion is that the Bengali, even in his present decadent condition, is far more intelligent than these people. I have often tried to analyse and find out the secret of Marwari success, and their grip over Bengal. They have no education, no technical knowledge and suffer from most tyrannical and narrow-minded social customs and laws. Why do they then succeed? My own belief is that, as between themselves, they show an amount of trust and co-operation, which is incredible to the outsider, and which I do not find in Bengalis."

In conclusion let me repeat that the utter helplessness and ineptitude of the Bengali in business are due to his highly emotional and impulsive nature. The rapid means of communication has brought him in touch not only with the European

but also with the Japanese and Chinaman, as also with the non-Bengali—the Marwari, the Gujrati, the Borah or Nakhoda, the Parsi, the Behari or the U. P..man, the Punjabi, the Oriya, the Cutchi and the Sindhi. The ground is being cut from under his feet in every walk of life and activity. His cook, his domestic servant, his ferryman, his coolie, often his labourer in the field, his cobbler, his dhobi, his barber—all these are recruited from outside his province. The internal trade of his land has passed away from his hand as well as his export and import trade. In a word, as far as bread-earning problem is concerned, the Bengali is hopelessly floundering in the land of his birth. It is this heart-rending state of things which has been almost a source of agony to me during the last quarter of a century and more. In fact, the failure of the Bengali in the economic world has been my obsession, so to speak. I, therefore, very much welcome the move initiated by Dr. Mookerjee for narrating before you the scope which different industries of the province offer to you by eminent businessmen of the city. I know that for the present deplorable condition of our youngmen with fine intelligence they themselves are not to be blamed. But on them rests the task of proving to the world that as in patriotism similarly in business they do not lag behind other provinces.

I have ventured to say many things about the shortcomings of the Bengali with the fond hope

that my timely note of warning will not be a cry in the wilderness. The Bengali has got many noble qualities and I am proud of my nationality and I glory in being a Bengali. In one essential aspect, however, he has proved to be a dismal failure, namely, in the art of earning livelihood. I have not, therefore, spared any pains to dissect the Bengali character and lay bare its weak points. Like a surgeon I have plunged the lancet deep into the flesh so as to remove the morbid tissue and apply healing balm. The Bengali people is after all my own people and its faults are my own faults ; and its many redeeming qualities are equally my own. I have thus a moral right to give such advice to it as I think fit to give.

COAL INDUSTRY

By J. H. S. Richardson

Senior Deputy Chairman, Andrew Yule & Co., Ltd.

Probably nearly all of you regard coal as a most uninteresting commodity which is sold locally at what in your parents' opinion is far too high a price, and I expect that very few of you realise that in reality it is the cornerstone upon which the lofty edifice of Indian industry has been built. Without coal the jute and flour mills you see upon the banks of the Hooghly, the great steel works of Tatas, the Cotton Mills of Bombay and Cawnpore, would not be the magnificent enterprises which they are to-day. Industrialism requires power, and coal still constitutes the chief source of power in India, and indeed throughout the world. India is fortunate in having large supplies of coal available within the country, and as it is mainly on these supplies of Indian coal that India's industries have been built up, the history of the coal trade in India must be of considerable interest to all who take a pride in the development of their country.

Coal is an amorphous stratified rock formed by the decomposition of vegetable debris. It may be divided into five types, each representing a stage

in the transformation of the vegetable debris into the final product, anthracite. The five types are, Brown coals, Sub-bituminous, Bituminous, Semi-bituminous and Anthracitic; and as the process of the transformation of the vegetable debris into coal consists, broadly speaking, in the elimination of hydrogen and more especially oxygen, and the consequent concentration of carbon in the residue, you will understand that each successive type I have mentioned contains more carbon and less hydrogen and oxygen, and therefore becomes more valuable. The oldest and best type for its burning properties, anthracite, is not found in India and this explains why the best Indian coal is not equal to the best Welsh coal, but nevertheless some of the coal in India is of very good quality.

Mr. Suetonius Grant Heatly, the Collector of Chota Nagpur, is credited with having been the first to discover coal in India, in 1774, near the village of Sitarampur in Bengal. He and a Mr. John Sumner took out a license that year to work coal mines, and are said to have started with six mines, two of which, Chinakuri and Damalia, still exist in the ownership of the Bengal Coal Company. This early venture however failed to prosper, and the next we hear of Indian Coal was in 1814, when the Marquess of Hastings, then Governor-General of India, instituted an investigation into the country's coal resources, and a Mining Engineer, Mr. Rupert Jones, came out from England

to report upon the Bengal coalfields. He found coal seams near Raneegunge, and obtained an advance of money from Government to enable him to work these seams, but failed in 1820, and his enterprise was taken over by Messrs. Alexander and Company, a Calcutta Agency house. Other development was also undertaken by a firm called Gilmoore & Company but in 1835 Alexander and Company failed and in 1843 Gilmoore & Company went into liquidation, the collieries of the former being taken over by Dwarkanath Tagore, grand-father of Dr. Rabindranath Tagore, the famous poet, and the interest of the latter acquired by a joint-stock company called Carr Tagore & Company, of which Dwarkanath Tagore was a partner. Both Alexander & Company's and Gilmoore & Company's coal mining interests were therefore absorbed by Carr Tagore & Company, who were the direct predecessor in title of the Bengal Coal Company, Limited, the oldest coal-mining company still in existence in India, and of which I have at present the honour to be Chairman.

This short account of the very early days of coal mining and the number of failures shows that even then the trade had its troubles, but they were very different to the troubles which confront it today. There was no Railway, and hardly any roads. The country was covered with scrub jungle, and communication between properties

was maintained by means of elephants. Coal was raised by primitive gins worked by hand labour, the labourers, a dozen or so to each gin, tramping round and round in a circle encouraging themselves by a monotonous chant. The coal then had to be carted to depots on the banks of the Damuder river, and was boated down the river to Calcutta. The river was only navigable during the monsoon months, and for the rest of the year Calcutta had apparently to depend on what stocks could be laid down during the monsoon. It was not until the East Indian Railway extended its line in 1851 into the coalfields that the proper development of India's important asset of her coalfields could be undertaken.

It is interesting to note that coal was directly responsible for the creation of the Geological Survey of India, which has since done so much towards revealing India's mineral wealth. In 1836, one hundred years ago, when Lord Auckland was Governor-General, a Coal Committee was set up, which submitted a report in 1837 and another report in 1845. In the latter they "ventured to recommend a Geological Survey of the coal formation of India," which was approved by the Government of Bengal, and accepted in London. Mr. Williams of the Geological Survey of Great Britain came out, he and his successors examined many of the Indian coalfields, and in 1856 the Geological Survey of India was properly established as a Government Department.

I have so far in this talk dealt only with the Bengal field, and perhaps at this stage I should explain that though by far the greater part of India's production of coal comes from this and the adjoining Bihar fields, there are also coalfields in the Punjab, Assam, Hyderabad and Rewah States and the Central Provinces.

The year 1937 was the peak year for the production of coal in India, over 25 million tons having been raised. This compares very poorly with output in certain other countries, the U. S. A. for example producing about 375 million tons annually, Great Britain 220 million, Germany 140 million and Russia 108 million. It must be remembered however that in India the trade in coal for household purposes is infinitesimal as compared with the size of the population and this trade in the other countries I have mentioned constitutes a valuable offtake. If only the household demand in India were one and a half maunds per person per annum India's output of coal would need to double itself to meet the demand !

The markets for Indian coal in the order of their importance are the internal market, which is supplied by rail, the coastal markets, which are supplied for the most part by coal shipped from Calcutta, and the export markets. Of these the internal market is far and away the most important, consuming approximately ten times as much as the other two put together.

The Railways are the biggest consumers of coal in India, followed by the iron and steel industry, and these two between them dispose of over half the coal production of the country. Both have their own collieries, but are also very large buyers from the market, the Railways, for example, buying by public tender something like three and a half million tons annually. The figures of approximate coal consumption of the various industries are published annually and although of course they cannot be anything like accurate, they are of general interest. For 1935 they are :—

Railways nearly	73 lakhs tons
Iron & Steel Industry nearly ...	56 ,, ,,
Miscellaneous industrial and domestic consumption	37 ,, ,,
Cotton Mills	15 ,, ,,
Bunker Coal	10 ,, ,,
Brick Manufacture nearly ...	8 ,, ,,
Jute Mills	6½ ,, ,,
Inland Steamers	5½ ,, ,,
Tea & Paper industries about ...	1¾ ,, ,, each

It seems probable that internal demand is likely to improve in the next few years, in spite of the keen competition from fuel oil and hydro-electric development, in view of the general industrial improvement of the past two years and of the number of new mills and factories recently projected in

various industries, for example, the paper industry. There is another factor too which may have an important influence upon demand, that is the work being done by the Soft Coke Cess Committee. Soft Coke is coal from which the gases and volatile matter have been driven, and it is a very suitable fuel for cooking and other domestic purposes. The Government of India appreciated however some years back that considerable propaganda would be necessary to popularise it, and formed a fund for that purpose, and a Committee to administer the fund. Progress is necessarily slow, but good work is being done and annual soft coke sales are now approaching the million tons mark, which means the disposal of a million and a quarter tons of coal, since it takes fully a ton and a quarter of coal to make a ton of soft coke. The potentialities of development in this particular field of domestic consumption in a vast country such as India are clearly very great.

We now turn to the coal shipping trade and its two markets, Indian Ports, and the Export market. It is for this business that the Coal Grading Board has been created, in order to safeguard the interests of buyers by inspecting all shipment coal when loaded into railway wagons at collieries and again when loaded from wagons into steamers at the Docks in Calcutta, and by then issuing a certificate showing the grade of coal shipped and the collieries from which the coal was supplied, and certifying

that the consignment was a satisfactory one. The railways grant a special rebate of rail freight on coal shipped under a Board certificate, and collieries therefore which wish to compete in this shipment business are only able to do so by submitting to the supervision of the Board.

The coal is carried either in the steamers of the various coastal lines or in steamers specially chartered for the purpose, sometimes on time charter, but usually for one or more voyages. The chartering of steamers is a very important branch of the coal shipment business, as most sales of coal for shipment are on a delivered basis and therefore include the cost of sea freight ; and as sea freights fluctuate considerably, the fixing of annual contracts necessitates either securing a freight cover in advance, or taking a forward view of the freight market.

Shipments to the various Indian and Burmese ports totalled rather over one and one-third million tons in 1937 ; 1938 figures are of course not yet out. Rangoon is the biggest buying port with over half a lakh of tons annually.

The other section of the coal shipment business is the export trade to Colombo, the straits, and the Far East. This business improved greatly last year due to a large demand from China, and there seems to be a good chance of India's coal exports during 1938 totalling 7½ lakhs tons as against 3,28,000 tons, the average of the previous five years.

Much interest is being taken now-a-days throughout the world in processes designed to make the fullest possible economic use of coal. The principal ones are low temperature carbonisation and hydrogenation. In the former the main product is a solid fuel, in the latter the main product is liquid fuel, and in both processes there are a number of bye-products which normally are wasted if coal is consumed in its natural state instead of being treated by these processes. Germany expects in a few years to be manufacturing all her requirements of petrol from her supplies of coal, and Japan is I believe working to a similar programme. In England the hydrogenation plant at Billingham has attracted much attention, and there are several other hydrogenation and low temperature carbonisation plants. It has been freely suggested that similar enterprises should be started in India, and no doubt this will come in time, but the initial cost of these plants is very high and it must be remembered that India and Burma, unlike Germany, Japan and Great Britain, possess large fields of natural oil, and also that the disposal of the bye-products may be a matter of difficulty in a country such as India with a limited range of industries.

I must now tell you something of how coal is mined, and of the problems which arise in the process.

Coal is found in what are known as seams, which vary enormously in thickness, some being

over one hundred feet thick and some only a few inches. About seven feet is considered the most convenient minimum thickness as this allows a cooly to walk upright carrying a basketful of coal on his head, but actually seams of less than seven feet are workable. Seams usually overlie at varying depths, the one from the other, so that a coalfield may contain from one seam upwards, the Dishergarh field for example having two main seams and the Jharia field thirteen. These seams usually outcrop upon the surface and slope downwards either gently or steeply into the earth, and if a coalfield contains several seams, they may outcrop, for illustration, like ripples on a tank after a stone has been thrown into it, the tank being the coalfield, the ripple nearest the stone being the outcrop of the topmost seam and the farther-away ones the outcrops of the seams below. The seam as it slopes into the earth, is said to be dipping, and in coal properties therefore there is a rise side and a dip side, and the level course across the property is called the strike.

If the coal is near the surface it is usually mined by means of inclines, which are tunnels going down into the earth following the dip of the coal seams. These tunnels have rails laid in them, and a haulage engine on the surface which hauls the filled coal tubs to the surface depot, where the coal is loaded into railway wagons. Now-a-days however most of the shallow lying coal has already

been exploited and new development is therefore of deep coal by means of pits.

Some of you may be familiar with the look of a pithead; it might almost be called the typical emblem of the coal industry. It is a great right-angled triangle of steel girders, surmounted by the huge wheels which carry the winding rope and the cage attached to the rope: behind it is the building which houses the winding engine, and nearby the chimney stack which denotes the boiler-house, and the small single storied building of the colliery office. If the colliery is a properly equipped one, there will also be a gantry for the screening plant, where the coal is screened into steam coal, rubble coal and slack coal before it is loaded into wagons. Steam coal is the lumpy coal over 2 inches in size, rubble coal is smaller, about the size of walnuts, and slack is the residual dust and small pieces; and buyers take whichever of these suits their particular boilers best. Under the end of the screening plant is the railway siding with its line or lines of wagons, and at a distance there may be visible some rows of one-storied houses which are known as *dhowrahs* and are where the resident cooly labour lives. The chief impression one gets on first visiting a colliery is I think one of peace and quiet, anyway as compared to the usual racket of a mill or factory. There are a few coolies at work, and the screening plant is busy discharging coal into wagons, but that is all there is to be seen

on the surface, and the only signs of the incessant activity going on underground are the great wheels revolving overhead drawing up the laden tubs of coal.

If we go into the colliery office we shall see hanging on the wall the plan of the underground workings of the colliery. There are several methods of laying out the workings of a mine, but the one most commonly in use in India is what is called the pillar and stall system', and so this is the system I shall describe. The plan in the office will be like a large irregular chess broad ; the squares of the board represent immense pillars of coal, and the lines dividing the squares are the galleries which have heen driven between the pillars. The principle is that in the first working of a colliery as it is called, the pits—under the mining laws two exits are necessary for every colliery—are sunk to the seam in the most advantageous position, and galleries are projected on all sides in this chess board pattern as far as the boundaries of the property. Haulage engines are installed at suitable positions to draw the coal tubs from the working faces to the pit bottom, such pumps as are necessary are put in, and a carefully thought-out scheme of ventilation is put into operation, usually by means of a large fan on the surface and stoppings underground of masonry or brattice cloth which direct the air current along its proper course. During this process of develop-

ment of a colliery the miners win the coal only from the gallery faces, and the galleries advance therefore, leaving the pillars untouched, until the boundary is reached. The amount of coal taken out in this first working depends upon the depth of the seam, the nature of the overlying strata, and the nature of the coal itself, but it is safe to say that very much more coal usually remains in the pillars than has been taken out in the driving of the galleries.

It is never possible exactly to achieve the chess board pattern. The shape of the property must be considered, and the presence of dykes or faults may interfere with the layout ; the former are intrusions of rock in the coal, and the latter displacements of the seam itself upwards or downwards.

So far everything has probably been comparatively straightforward ; there are always difficulties in mining, and dangers, but the most difficult period in the life of a colliery starts when development is finished, and it becomes necessary to extract the pillars in such a way as to win the maximum amount of coal possible from the property. It is not possible to win all the coal, as the surface has to be supported under tanks and jores, railway lines, buildings and so on, and the pillars of coal under these must therefore be left unless the mine is stowed, a method which I will explain later.

Where hydraulic stowing is not resorted to depillaring is done by extracting the pillars and

supporting the roof while this operation is going on by means of stone cogs or wooden props. They are then withdrawn, and the roof allowed to fall in, forming what is called a goaf. This ultimately results, when a sufficient area has been goafed underground, in a subsidence on the surface ; and those of you who have visited the coalfields must have noticed many areas where the earth looks as if it had had a very bad attack of smallpox. These goaves are also a source of danger in other ways, principally as prolific creators of underground fires. Sometimes, for marketing reasons, only the best section of a seam is worked, and the rest is abandoned, and in due course this lost coal may ignite in the goaf from spontaneous combustion. Or the roof may fail to break and fall when it should, and later "creep" as it is called may start, and the great weight of the roof ride forward, crushing one or more pillars, until a substantial quantity of coal is buried in the goaf, and spontaneous combustion starts a fire. There has been much comment lately on the number of fires raging in the Jharia coalfield, and most of these are gob fires, as fires in the goaf are called.

In gassy mines the goaf can harbour another danger. It is impossible to pass the ventilating current of air through it, and gas, which normally is diluted and drawn out of the mine by the air current, can therefore accumulate there, and

may at any time be suddenly forced out into the workings by a further fall of roof in the goaf. Gas in normal quantities can be dealt with, but the sudden inrush of a large quantity may be most dangerous. The best way in which the dangers attendant on the practice of goafing can be obviated is by stowing the void created underground by the extraction of the coal seam with some form of incombustible matter and for most collieries the easiest way of doing this is by hydraulic sandstowing. This consists of flushing sand and water through pipes into the mine; the water drains off and is pumped back to the surface and the sand is left in a solid mass to support the roof as the coal is extracted. Unfortunately this method, or indeed any method of stowing, is expensive even for collieries within easy reach of supplies of sand, and the present very low price for coal does not permit of any general adoption of it though it is practised to some extent by some collieries on the banks of rivers. There is another serious objection to it—the difficulty of distributing the necessary sand.

When as many of the pillars as possible have been extracted, the colliery is finished unless another seam in the property is to be exploited by the same pits.

A visit underground is an interesting, but very dirty, experience. Taking a lamp or a torch and a stout stick each, we step into the cage at the

top of the shaft, various bells ring, and down we go into darkness and a dank atmosphere, with usually the sound of water falling down the sides of the shaft. We feel increasing pressure on the eardrums, and swallow hard, which helps to counteract it. The first impression underground is of intense darkness, which our lights seem to emphasize rather than illuminate, but in a few minutes the impression passes, we get our " pit eyes " and can see fairly well, though not very far. We move off down a haulage road, and as the going is very rough and the slope may be steep we are glad of our sticks. Near the pit bottom there is a strong draught, and the air is cool, but the further into the workings we go the greater the humidity becomes and by the time we reach the place where the miners are at work, which may be quite a tramp, we are probably dripping wet. The coal may be got by means of hand labour, coal cutting machines and explosives, and when it has been brought down, it is loaded into baskets and carried to the nearest haulage road where it can be filled into tubs, and the full tubs are then drawn to the shaft bottom. The actual getting of the coal is not very interesting to watch, but a depillaring district is interesting as it is like being in a jungle of dead trees if many props are being employed to support the roof. If we thread our way between the props to the goaf edge, we find ourselves looking into a dark cavern filled with

broken slabs of stone, and the size of the stones brings home to us the danger of roof falls.

Underground the workings of the mine are probably of vast extent, there may be miles and miles of galleries, and at first sight conditions appear somewhat weird, but one soon gets used to them and in India one has usually the comfort of being able to walk upright, which is often not the case in coal mines elsewhere.

You may be interested in a brief account of the different grades of colliery officials. Underground, we start with Sirdars and Safety-men, who test for gas, etc., and shot-firers who fire the blasting powder, with which coal is won. These are the most subordinate grades, but normally form a class from which higher grades eventually may be drawn. Above these are the Overmen, who supervise and direct their activities, look after output and tub supplies, and generally pay attention to safety precautions. Above them again are the Assistant Colliery Managers, trained and educated men, holding either first or second class certificates of competency in mining, who control large sections of the workings and are responsible to the Colliery Manager, each for his own particular section. These Assistants should, if equal to the position, become in due course Colliery Managers, and then hold extremely responsible jobs. The Manager of a colliery is responsible, under the Mines Act, for seeing that safety measures enjoined

by the Act are carried out, and is responsible to his employers for the running of the colliery. He has to see that output is maintained at a satisfactory level and that costs are kept as low as they reasonably can be. He must have a thorough practical knowledge as to how to perform various underground work, a good mechanical and electrical knowledge, and a knowledge of elementary law, medicine, physics and chemistry, and above all things he must be able to handle and control men. In large concerns there may be higher grade officials still, such as Agents of groups of collieries, who may assume responsibility to the Mines Department for the safety of those collieries instead of the Manager doing so, and may supervise the policy of, and generally advise, the managers of the collieries in a group; and higher still there may be a Chief Mining Engineer or General Manager, who controls the mining side of a large company or a group of companies under the same Managing Agents, and acts through the Agents or Managers below him.

Above ground, important officials are Mechanical and Electrical Engineers who look after colliery plant and workshops. This task in modern mechanised collieries requires able and hard-working men. There are also Mine Surveyors who have specialised training in this work. Further, in modern mining there is scope for other varieties of Engineers, such as Development and Planning Engineers, who

should be qualified surveyors and mine managers acting under the senior mining official of a company, with special duties of laying out surface and underground work, and analysing production costs under various methods. Another such class are Safety Engineers, men with colliery manager's qualifications, who specialise in studying accidents with a view to preventing their repetition ; or Ventilation Engineers, who make a special study of this important subject. In all these cases, however, it must be remembered that theoretical training must be supplemented by extensive practical knowledge, and the man who wishes to succeed in a mining career must appreciate that the only way to do so is by sheer hard labour, both in his period of training and afterwards when actually engaged in a job.

There is in India an Institute which exists for the purpose of giving instruction in mining. I refer to the Indian School of Mines at Dhanbad. The School receives students who have passed the Intermediate Examination in Arts or Science and are under 22 years of age on the 1st January of the year in which the student seeks admission. There is an Entrance Examination, which is held in July at Dhanbad, consisting of written papers on Mathematics, Arithmetic, Elementary Algebra, Geometry and Trigonometry ; Elementary Inorganic Chemistry ; Elementary Physics ; and English Composition. The entrance fee for this

examination is Rs. 10 and if students are successful there is an Admission Fee also of Rs. 10. The Tuition Fees are Rs. 120 per annum for each of the first and second years, and Rs. 180 per annum for each of the third and fourth years of the Course. The examination for the certificate of the School of Mines in coal mining takes place at the end of the third year, and the fourth year of the Course is for the diploma in mining engineering. In addition to the course at the School of Mines all students have to acquire a certain amount of practical experience in a mine, this practical experience amounting to 16 weeks in the case of the certificate in coal mining and 24 weeks in the case of the diploma. In England several Universities run what are called Sandwich Courses—6 months at the University and 6 months practical work in a mine alternately, but this is not the practice in India, and the student has to obtain his practical experience during his vacation from the School of Mines. The School has a hostel, an athletic club and a library; and provision is therefore made for recreation as well as work. There are also various scholarships which may be won, and if any of you are interested in taking up mining as a career you may obtain full information by writing to the Principal of the Indian School of Mines at Dhanbad. I think myself that such a career offers a great field of opportunity to Indian youth at the

moment. Coal mining is a large and important industry and there will always be a demand for certificated Colliery Managers and Colliery Assistants. At present this demand is to some extent being met by bringing men out from England, but I feel that in the future, provided that there is an adequate supply of competent Indians available, coal mining companies will be very willing to make use of their services rather than bring men from abroad. I can in fact think of no career in which the prospects of employment are more certain for any one with energy and ability. My own firm, I am glad to say, now employ a number of Indian Colliery Managers with whom we are very satisfied, and we have also under consideration a scheme for the training of apprentices in our own collieries in order to assist likely youths towards qualifying for Mine Managers' Certificates and employment in our organisation in responsible capacities.

TEA INDUSTRY

By J. Jones

James Finlay & Co., Ltd.

With a view to creating a background for any points which may be the subject of discussion I propose to give you a brief outline of the history of the tea industry in India and of its development and administration in present-day circumstances. It is difficult to say exactly when use was first made of tea. Chinese legends—some of which must be over 4,000 years old—describe a drink prepared by pouring boiling water on leaves but after a lapse of so many years it is not possible to obtain authentic information on this subject. There is one reference which was made in the third century by a famous Chinese physician and it would not be out of place to quote it here. It reads: "To drink tea constantly makes one think better." A reference in somewhat similar vein is made in the legends of Japan wherein the discovery of tea in China is credited to a Buddhist saint who, finding it difficult to remain awake during his meditations, plucked the leaves from a near-by bush and chewed them. He is reported to have found that his mind was cleared and refreshed by the juice of the leaves and he threw off his lethargy thereby originating the use of the most gracious of all temperance

drinks. Another source indicates that the use of the beverage in these early years spread throughout the East under the patronage of the Buddhist priests in their efforts to inculcate temperance amongst the people. In this connection it is interesting that even in Cowper's day he mentions tea as "The cups that cheer but do not inebriate" The first reference to tea that is generally accepted as capable of substantiation is to be found in the correspondence of a Chinese soldier during the 4th century. By the beginning of the 7th century tea had been introduced to general use both as a medicine and as a beverage and was already an article of considerable trade in China. Be that as it may, I am inclined to believe that were the records available, we would find that it was in India and not in China that the first appreciation was shown and the first use made of tea. It is almost certain that the natural home of the tea plant was in the locality of Assam and Burma and that being so it is not inconceivable that the peoples who lived there many thousands of years ago were led instinctively to the use of tea, discovering in it that refreshment which is such a feature amongst its many properties today.

We can, I believe, accept as generally certain that India is the home of the tea plant but that the trade in tea as a commodity was started from China which country was the world's greatest exporter of tea for many many centuries.

Around the development of tea in China and in Japan too are woven many fascinating legends and many romances culminating, one might almost say, in the races which the then greyhounds of the seas—the tea clipper ships such as the "Cutty Sark" and the "Thermopylæ" and the "Ariel" and the "Taeping"—used to have in striving with each other as to which would deliver its cargo first. It is not my intention, however, to say anything more of these distant times which absorbing as they are would occupy many lecture hours in even attempting to do them justice.

The story of how India came to prevail in the tea markets of the world is both stirring and romantic. Bear in mind that tea was indigenous to India and that it was not recognised as such. Towards the end of the eighteenth century a famous English botanist drew attention to the natural possibilities that existed in India for the growing of tea and in the fifty years that followed great efforts were made to establish an industry here. But the people engaged in the work made no great headway and much time and energy were expended in importing seed and even workmen from China to help towards the object in view. It was in 1823 that the tea plant was discovered growing wild in Assam by Mr. Robert Bruce who was at the time engaged in a trading expedition. Seed was collected from the plants

thus found and sent to Gauhati and to Sadiya in Assam and it can truly be said that this was in fact the start of the great tea industry in India although progress was very slow at first and it took many years of experiment to convince the sceptical that the Indian seed was really better than that imported from China. Meanwhile discoveries of tea growing wild were being frequently reported from various parts of Assam and at the same time experiments were being carried out with a view to finding which localities in India were best suited to the culture of tea. The results of these experiments are best reflected in the distribution throughout India of the tea growing areas which to-day are as follows :—

Assam	444,564	acres
Bengal	203,433	,,
Bihar	3,262	,,
United Provinces	6,463	,,
Punjab	9,513	,,
Madras	77,788	,,
Coorg	415	,,
Tripura State	10,374	,,
Mandi State	1,059	,,
Nepal	300	,,
Cochin	1,678	,,
Mysore	4,208	,,
Travancore	78,958	,,
	842,015	acres

We have taken a big jump covering a period of over a hundred years and in that time the Indian tea industry has risen from the experimental stage to the premier position in the world, from the position of only having odd areas of tea growing wild to that of cultivating 8½ lakhs of acres of the product and employing nearly one million people to do so. As you can imagine such progress was not accomplished easily. It involved much hard work and many hardships which frequently resulted only in disappointment and often severe financial losses. Despite these early and often repeated reverses the pioneers struggled on and to-day the result of their energy and enterprise is evident in the industry so created. At this stage it might be appropriate to describe how a tea estate is started, developed and maintained. The first matter for consideration is the choice of a locality and of a site. In dealing with these two points the planter has to consider the capital at his disposal, the land which is available, the soil, the rainfall, the suitability of the aspect for tea, the transport facilities actual and potential and the extent to which labour is available in the locality. Having selected a suitable area, houses are put up and a start is made on felling and clearing the jungle and in the preparation of the soil to receive the young tea bushes which are transplanted from near-by nurseries. Normally a tea bush is not mature, that is, in a state to give an economic

yield of leaf, until it is five years old: in some districts it takes longer than five years for the bush to become mature. It will be recognised therefore that there is ordinarily a very considerable period between the point at which the jungle is cleared and the point at which the new tea estate commences to earn some income. That period involves the outlay of heavy capital expenditure on the development of the estate and on the necessary buildings wherein the establishment is housed and where the tea leaves are prepared for despatch to the markets. The planter is meanwhile faced more often than not with many problems connected with the husbandry of the estate and there are many factors which tend to retard the growth of the plants and these have to be overcome. To this end the planter consults, where necessary, the Scientific Station which has been established at Tocklai by the Indian Tea Association. At that Station are employed scientists who have made a special study of the growing and manufacture of tea and who are continually conducting experiments with a view to obtaining information based on practical results which will be of use to the tea growing industry. On the agricultural side of the undertaking the planter has to see that the soil is kept so far as possible free of noxious weeds. The common practice is to deep-hoe the whole of the estate in the winter months and then to light-hoe the area four or five times during the spring and

summer. Such cultivation will in most cases suffice to prevent the weeds from growing up and causing harm to the tea bushes, but in special circumstances hand-forking and weeding have to be resorted to to attain this end. The tea bushes are assisted in their growth also by the distribution of shade trees throughout the estate. These trees give shelter from inclement weather while their leaf fall and loppings provide a valuable green manure which when forked into the ground makes a valuable contribution to the nitrogenous contents of the soil on which the roots of the tea bush feed. Then, in regular cycles the tea bushes have to be pruned because if they were not cut back they would not remain bushes but would become tall trees and quite useless for the purpose of leaf production and plucking. Generally the bushes are allowed to make permanent growth at the rate of about two inches of wood at a time until they get too high for the pluckers to reach, then they are heavy pruned to approximately fourteen inches from the ground and then allowed to grow up slowly again To facilitate the cultivation of the estate, roads and paths have to be traced out, constructed and maintained, while the estate's requirements of thatch grass, bamboo and wood fuel have to be provided for by the planting up of suitable areas of each of these useful commodities.

It is not generally known that on each tea estate there has also to be a factory in which the leaves

are manufactured into the black tea which is so familiar to us all. Naturally the size of the factory depends on the weight of leaf with which it has to cope, and that in turn usually depends on the area of the tea estate. Within the factory is a very considerable array of machinery driven by a steam or an oil engine which may be able to generate up to 400 horse power. The machinery for manufacturing the leaves may be classified broadly as rolling machines, drying machines, tea breakers and fanners and sifting machines. In addition to that there is the ancilliary machinery required for the water supply schemes and for the electrical plant. The factory building itself is generally constructed with brick walls and iron columns and usually has an iron roof. It may be a building of as many as four stories and in some cases will have a ground area of nearly 200,000 square feet. In addition to the factory itself there have to be erected houses in which the leaves are laid out on wire racks to wither. There are also many godowns which have to be provided for the storage of implements, fuels and general stores. A hospital and a dispensary, a school house and an office are all necessities and these too are generally *pucca* buildings made of bricks and iron. A tea estate is therefore not what it is frequently imagined to be but is a compact self-contained unit providing for its own requirements both in buildings and in machinery.

Let us now assume that the new estate has successfully passed the period of development and extension and that it is now mature and yielding leaf in sufficient quantities to be manufactured, packed and despatched. In North India the estates pluck the leaves during the months of April to November inclusive while the remaining months of the year are devoted to renovating the bushes and overhauling the buildings and factory machinery. The process of plucking is the basis and foundation of the tea crop for on the way in which this is done depend firstly the standard of the teas and secondly the weight of the harvest. Great care has therefore to be exercised to see that only the best shoots, which usually comprise two leaves and one bud, are taken and also that none of them are overlooked and wasted. After the leaf is plucked it is weighed and then it is spread out in a withering shed until it reaches a condition which permits of its being taken into the factory where it is put into machines and undergoes the process known as rolling, that is, the leaves are broken up and rolled into the form in which we see them in the shops. The chief object in rolling the leaves in these machines is to break up the leaf cells and to liberate the juices which they contain and which are thereby made available readily when the leaf is ultimately used for the infusion of the tea which we drink. After rolling, the leaf is fermented and finally dried at a high temperature in machines specially

designed for that purpose. Following on the drying process the leaf is passed over several trays made of wire mesh thereby becoming sorted into the different grades with which you are doubtless familiar, namely, Pekoe, Orange Pekoe, Broken Pekoe, Broken Orange Pekoe, Broken Pekoe Souchong and Fannings. By this time the process of tea making is complete and the tea is ready for despatch in aluminium lined plywood boxes either by rail or river steamer to the docks in Calcutta or Chittagong whence it is shipped by an ocean-going steamer to London or else it is stored in the warehouses in Calcutta and ultimately sold in the auction sales at Mission Row.

At the auctions the tea is bid for and bought by the tea blenders and distributors who despatch it to their customers the whole-salers who usually blend different kinds and types of tea together to suit the particular tastes of the people in the different localities where the tea will be drunk. Then the tea finally emerges from the stores and grocers' shops in tins or packets for sale to individuals.

The term "Indian tea" is a very wide one and includes the teas produced over large areas and localities, many of which have different climatic conditions and different soils and are at varying elevations and latitudes. You will be able to appreciate that climate, soil and elevations all have direct effects on the quantity and quality of the tea and these effects are immediately apparent in

the market value of the teas. The finest quality teas in India probably come from Darjeeling and from the hilly districts in South India. The tea-growing districts can be broadly divided into two, namely, North-East India and South India. The tea area in the North-East is much greater than that in the South. The most important tea producing province is undoubtedly Assam, in which are included the Brahmaputra Valley and the Surma Valley. In turn the Brahmaputra Valley is subdivided into the areas of Lakhimpur, Sibsagar, Darrang and Nowgong. Tea from each of these places has its own characteristics. Bengal ranks next to Assam and the chief tea-growing areas in Bengal are Darjeeling, the Terai, the Dooars. Darjeeling teas are unique in quality and the best of these are usually made in the months of June and October. Dooars teas are also valuable, particularly those made in the autumn. The teas from the Kangra Valley in the Punjab, from Madras and from Travancore and Mysore are all very well worthy of mention and, as elsewhere, the produce of the different districts and provinces differs from that grown in other areas.

The packets of tea which are sold to the public seldom, if ever, contain the produce of one district only. It is the duty of the blender and tea taster to bring the teas from the different localities together in varying proportions so that the mixture so created will provide a liquor

which will be appreciated by the people who are to use it. Tea blending and tea tasting are separate subjects but as you can understand it takes many years of training before a man can join the ranks of those who can by tasting hundreds of pots of tea tell where each was grown and what its value is.

From the brief outline which I have endeavoured to convey of the different stages of tea planting, tea manufacture and tea blending and tea sales it will be obvious that a great number of people find employment in this industry.

In the time at our disposal it will only be possible to describe and discuss the conditions of employment on the actual tea gardens themselves with particular reference to the spheres which young men of education, sound constitution, character and practical training might consider as providing scope for careers. To bring the various features into relief it is desirable to have a clear picture of what constitutes the personnel and establishment on a tea estate.

First, there are the purely agricultural workers who hoe the soil and pluck and prune the bushes. These are people who have always been accustomed to employment of that nature either on land leased by them near-by or else they have engaged themselves to ryots and zemindars in their own country before obtaining employment on a tea estate which incidentally they are nearly all

keen to do as the wages and amenities which tea estate labour enjoys compare very favourably with those obtainable elsewhere. The number of agricultural workers on a tea estate usually approximate one person for every acre planted with tea. These people live in houses built and maintained by the tea estate and they frequently cultivate vegetable gardens and *dhan khets* on their own account during the afternoons. They are provided with medical and hospital facilities free of charge and there is also a system of free primary education for the young people. The next class of employee is the overseer and the mechanic or fitter. The overseers are not infrequently chosen from the cultivators and their duties include the apportioning of the work to be done each day, its supervision and also the recording of what has been done and who is due wages for having done it. The mechanics find employment in looking after the simpler jobs which have to be done in maintaining the factory machinery in running order. They are usually recruited from the young men who have had some training in the engineering yards.

Then there is the clerical staff which attends to the book-keeping and store-keeping and issue side of the business. The clerks are men of good general education who have equipped themselves with a knowledge of accounting and business method which is not dissimilar to what is required

by anyone seeking employment in a mercantile office in the City. The work is not particularly hard and to one who is suited to it life on a tea estate is pleasant and healthy. As in all commercial undertakings so with the tea industry, it is at the bottom of the ladder that an aspirant to success must start. There are plenty of opportunities for a capable young man who is determined to get on but there is no short cut to the top of the tree. The only way is to progress by virtue of learning, experience, perseverance and industry to a position of responsibility.

The office and accounting establishments on tea estates earn salaries which, as is to be expected, vary in different circumstances but generally the range is between Rs. 20 and Rs. 130 per month. In addition to the monthly salary some estates also have a scheme whereby the office staff participate in commission calculated on the profits of the year's working. Further, many estates have provident funds which are of material assistance in creating a nest-egg against retirement. Free houses and fuel are provided and a servant allowance is not uncommon. Medicines and medical treatment are provided when necessary free of charge. Against these, however, it is fair to say that a tea estate cannot provide all the amenities for social intercourse and entertainment which are available to those who are employed in the big cities but on the other hand it frequently

offers opportunities for saving and for sport and agricultural hobbies which are not at the disposal of the urban dweller.

When a vacancy occurs in the office establishment of a tea estate it is customary for applications to be submitted to the local superintendent or manager by whom all such appointments are made.

For the man who has decided to make medicine his profession there is also some scope on a tea estate as the industry takes every precaution to safeguard and to improve the health of those who serve it. Elaborate measures are adopted to control malaria and to remove all possible sources of disease and ill health. Every tea estate has a hospital where those who require medical attention are admitted, treated, cared for and nursed back to health Large stocks of medicines and medical stores are maintained and issued as necessary. All this requires qualified supervision and doctors and compounders are necessary for this purpose. A fully qualified doctor may be in charge of the medical arrangements on a group of tea gardens and in such an appointment a salary of Rs. 600 and upwards per month is not uncommon. A less highly qualified man might be placed in charge of one estate's hospital only and he might start on a salary of Rs. 90 to Rs. 100 per month. Members of the medical staff also are usually provided with a free house and the other

amenities enjoyed by the other members of the establishment.

The responsibility for the organisation of all the working arrangements on a tea estate rests with the superintendent or manager. A successful manager has to be a man of many parts and of very considerable experience. A thorough knowledge of engineering both mechanical and structural is a very great asset and in North India a tea estate manager, more often than not, serves a complete apprenticeship in an engineering firm before taking up an appointment in tea. You can appreciate how important such experience is when you understand that so much practical work has to be done in circumstances far from outside assistance and which permits of no delay and where prompt execution of the job is essential. The manager has also to have a thorough knowledge of agricultural practices in so far as they affect the husbandry of tea in all its varied circumstances. Accounting is another subject with which a successful manager must be familiar as so much depends upon the accurate recording of the financial side of the undertaking. The manager has to draw up the programme for each year's working stating as exactly as possible what crop he will harvest, what cultivation will be done and the extent to which it is proposed to undertake the erection of new buildings and the repairs to old ones and also what mechanical repairs and replacements will be

undertaken in the factory. The cost of each item has to be estimated as nearly as possible and adhered to so far as practicable in the course of the year's working. A knowledge of drainage and of surveying will always prove useful as so much work of that nature is called for from time to time.

Above all he must be a man of tact and of sympathy, ready to understand the difficulties encountered in supervising the welfare of a community comprising many varied types and interests.

In closing this extremely brief outline of the chief points affecting the tea growing industry in India it is desirable that I should make reference to its economic position and to the outlook for the future. In this connection it has to be realised that although India occupies the premier position in so far as the exports of tea are concerned, several other countries are also largely interested in the production of the commodity. These other countries, in order of the extent of their exports, are Ceylon, Java, Sumatra, China, Japan, Formosa, Africa and French Indo-China. A certain amount of tea is produced in Russia also, but none of it is exported. Actually the areas under tea at present are capable of producing a crop much in excess of what the world can absorb at the existing rate of consumption. As a result of that state of affairs the industry encountered a grave financial crisis in

1932 and the price of tea fell to an uneconomic level while the markets were depressed by the rapidly mounting stocks. Many tea concerns were threatened with disaster but the situation was to a great extent saved by agreement being reached between the growers in India and those in Ceylon and in Java-Sumatra to regulate the export of tea from and to limit the extension of tea areas in these producing countries for a period of five years commencing from the 1st April, 1933. That agreement expired in 1938 and has been renewed for a further period of five years, that is, up to 31st March, 1943. Taking advantage of the regulation of supplies the tea industry has set itself to endeavour to effect a permanent improvement in its economic position by studying the progress or retrogression of the world's tea production and consumption and the reasons therefor and by examining ways and means for the increase of the consumption of tea in the world. A highly skilled organisation is engaged in utilising for advertising purposes funds subscribed by the industry with the object of introducing the merits of tea to those who have not had an opportunity to appreciate them and by the efforts of that organisation it is hoped that in the not-too-far-distant future it will be possible to effect a degree of balance between the potential supplies of tea and the world's absorption of that commodity. Until that object is attained the position of the tea

growers cannot be regarded as satisfactory but, in the meantime, the Indian industry is, by virtue of its agreement with other producing countries, able to employ its labour and care for their well-being in a degree that compares very favourably with any other sphere of employment in this country.

COAL INDUSTRY AND TRADE

By M. N. MOOKERJEE, M.L.A. (Bihar)

Ex-Chairman, Indian Mining Federation

At the outset I have to thank Dr. Syamaprasad Mookerjee, Chairman of the University Appointments Board, for inviting me to speak to you on the subject of the Indian Coal Industry with special reference to the scope it offers for the employment of the alumni of the University not only, I believe, as employees, but also as distributors and eventually as producers of Coal. I wish I could congratulate the Appointments Board on its choice ; there are, I know, many who could do better justice to the subject than I can hope to.

In introducing the subject I do not propose to go into the history of the Coal industry and trade or its needs and problems in this country, nor would I talk on the geological or technical side of it. You heard only a few days ago an informative narration of the former and a lucid exposition of the latter from the head of the oldest and biggest coal concern in India. I can hardly usefully supplement them.

Although the inception of the coal industry dates back to over 150 years, its expansion as an important key industry is not much more than 50 years old. All of us have some acquaintance with

coal through Soft Coke, adopted almost universally in Bengal as domestic fuel. But few beyond the ranks of students of science and economics appreciate the value of this mineral in our national economy. It is a key industry because it holds the key to the opening up and development of all other industries. The contribution of coal to the industrial regeneration of the country cannot be measured by its value in money. Whatever industrial expansion has been made in this country has been possible through the availability of cheap coal to provide the motive power. The pit-mouth price of Indian coal is the cheapest of all coalproducing countries. But for incalculable help afforded by cheap coal, India would have had to remain content today with continuing merely as a supplier of staples like Jute and Cotton, Iron Ore and other raw materials to foreign countries and as a dumping-ground for Cotton and Jute fabrics, Steel goods, Cement, Sugar, etc. Yet, curiously enough, it is for this important basic industry that all the kicks of both the Government and the consuming industries and the indifference of our leading men have been reserved. It is this very indispensability of Coal for Railways and Steamers, Mills, Factories and Power-houses that has been its misfortune; all want this essential raw material to be cheap in order to cheapen their running and production costs. They never pause or care to give a thought as to how coal itself can be produced as cheaply as they desire. The State with

its almost unlimited resources has opened up coal mines for its Railways and coal prices are thoroughly controlled and chained down to a level below the production cost of Railway Collieries. The Coal trade itself is so loosely organised that it is unable to raise prices to an economic level as a result of which chronic unhealthy condition prevails in the trade. The lot of coal producers is practically the same as that of producers of paddy and jute in this country with this difference that the latter receive at least lip-sympathy from all and practical sympathy from a few, but the former receive none from any quarters. I recognise that all this may not be considered as strictly relevant to the subject of today's discourse, but I believe that the picture will not be complete without the existing background.

Before the separation of the province of Bihar from Bengal in 1912, the development of the Coal industry was practically confined to the then Bengal, its growth in the Central Provinces being of comparatively recent origin. Some other provinces produce comparatively small quantities of coal. Practically all the pioneering work in the Coal industry, as in most of the other major industries, was done by Europeans ; but the contribution of a few enterprising Bengalis to this pioneering has not altogether been negligible. My young friends, you will be interested to learn that almost all these Bengalis, who were both directly and indirectly

responsible for much of the development of the industry, began their career at the lowest rung of the ladder. They started either as humble employees or as contractors and even labour recruiters under the European Colliery-owners. There was no dearth of capital in Bengal or Bihar 50 years ago but commercial and industrial pursuits totally failed to attract it from safer investments in landed properties. It is a well-known fact that only a few years ago before the economic depression overtook the agriculturists of this country, acquiring Zemindaris was the aspiration of almost every Bengali who could lay by some money. Even the living examples of hundreds and thousands of foreigners as well as our own countrymen from other parts of India flocking into Calcutta and making their pile in trade and commerce failed to open the eyes of the Bengalis. It was, therefore, a very difficult job for those, who had the will and enterprise but not the means, to get together even a few thousand rupees in order to start a Colliery. They had to borrow money at prohibitive rates of interest and any profit out of their venture would necessarily go towards liquidating their debts so that the development of their properties had to be put off till better days. Such better days used to appear in more or less regular cycles once in every five or six years and would run themselves out in the

course of a year or a year and a half. The net result of all this was that although most of the Collieries then owned by Bengalis had immense potentialities, not always realised by their owners, for want of funds and banking facilities these Collieries could not be so equipped and developed as to be very remunerative concerns. European businessmen and some non-Bengali Indians, who possessed better foresight as well as much better credit facilities, realised the weak position of these Bengali concerns and gradually absorbed some of the best properties, especially in the Jharia Coal-fields, owned by the Bengalis. Most of the Bengali mine-owners failed to rightly appraise the value of their holdings ; they realised only too late that what appeared to be tempting prices for which they parted with their properties were extremely inadequate in view of the profits subsequently made out of them by their purchasers. As an instance in point, let me tell you that a big Colliery, owned by a Bengali firm, bearing some of the finest coals available in India, which was sold to a European firm in 1896 for Rs. 3½ lakhs, earned during the last 42 years at a modest computation a net profit of over 2 crores of rupees. In the first decade of this century about 25 per cent. of the working collieries in Bengal was owned by Bengalis, but their present share is hardly 5 per cent. The share of Bengalis in the commerce and industry of this province as a whole is even below

this 5 per cent. No wonder, therefore, that the problem of educated unemployment is so acute and baffling.

The question of practical importance on which I am called upon to furnish some information today is whether the coal industry and trade, placed as it is at the present moment, can offer careers to our educated young men. I believe, however gloomy the background may be, the coal trade can yet offer promising careers and avenues for employment, provided our young men go about the business with some amount of confidence and reliance on their own capacity and with the energy, buoyancy and, above all, honesty that youth is capable of.

I shall, in the first instance, place before you all information at my disposal regarding employment in the services of the Collieries. Colliery-owners have got to employ under the law managers, sub-managers, surveyors, overmen and sirdars all of whom require technical qualifications, and some register- and record-keepers who need not have any special qualification. Besides, where electrical energy is employed, qualified Engineers, electrical supervisors and mechanics and elsewhere Engineers and mechanical assistants capable of handling steam-driven machines have to be employed. Besides, qualified Doctors and clerical staff to the requirement of each Colliery have to be employed. All other employees are manual

labourers, both skilled and unskilled. The emoluments of Colliery managers or sub-managers as well as of Engineers are fairly decent, those of mechanical assistants and surveyors are moderate and the pay of the rest is poor. Graduates as well as Undergraduates may qualify as Colliery managers after undergoing four years' course of training at the Indian School of Mines at Dhanbad and subsequently one to three years' practical training at a colliery so that after matriculating, even after graduating, one has got to pass through at least 5 years' training before he can appear at a Mine Managers' Examination. Shorter courses are prescribed for surveyors and overmen. I understood that Benares Hindu University also teaches mining and metallurgy up to the B.Sc. degree standard; the standard of education there must, therefore, be fairly high. But one obvious disadvantage that the Hindu University labours under is that, unlike Dhanbad which is situated in the heart of the coalfields, Benares is far away from any mining centre. From what I have just now stated it is evident that the field for employment of Graduates or Undergraduates from the University without technical qualification is by no means extensive in the coal industry. They have got to acquire further training for a number of years before they can secure openings or jobs offering decent salaries. The clerical staff in collieries or in their Head offices is scarcely well-paid. But

clerkship in colliery establishments, although by itself it offers little future prospects, helps a good deal towards preparing the necessary training-ground for young men to take an intelligent interest in the trade so that they may eventually start their own business independently. I shall endeavour to amplify this point later on. Now, for those jobs requiring technical qualifications, formerly collieries used to entertain mining students as both paid and unpaid apprentices who were mostly matriculates or I.Sc.'s and who would attend mining lectures at various centres in the coalfields. But their number has gradually dwindled, in the first instance, because there has been more disappointment than success in the ranks of these apprentices and, secondly, because regular students commenced coming out of the Sibpur Mining Classes (now abolished) and subsequently in increasing numbers from the Dhanbad School of Mines supplanting such apprentices wholesale. I have said these apprentices have proved more failures than successes but the responsibility for such failures is not wholly theirs. Personally I would prefer a manager who qualified from the ranks of these apprentices than one coming out of the Mining Schools mainly because side by side with acquiring theoretical knowledge the former secures very much better practical training in his future field of work than the latter and a more intimate acquaintance with both the trade and industrial sides. But one drawback

with the former is that while serving as apprentices they seldom get the opportunity of acquiring the higher training, both theoretical and practical, with which the present-day colliery manager has to be equipped. Working of a colliery is a hazardous job at all times, but as coal-mining operations advance from shallow to greater depth—because coal strata are all slanting and slope downwards into greater depths as you proceed—the danger of working increases. The colliery manager has to undertake responsibility for the safety of the life and limb of hundreds, sometimes thousands of mine-workers and has necessarily to be equipped with up-to-date knowledge of and training in mining methods. Varied knowledge of theoretical and practical mining can hardly be acquired by apprentices receiving their training at individual mining establishments.

Similarly, mechanical and electrical engineers and surveyors have got to acquire necessary training and qualifications in technical institutions. For higher mechanical and electrical training our young men, I believe, have to go abroad as there are very few institutions in this country which can impart a higher standard of technical education.

The mechanics are usually better paid than clerks in colliery establishments. Those of my young friends who do not despise or are not afraid of manual labour may pick up the job of mechanics after a comparatively short training. The

mechanics are popularly known as mistries and perhaps a good deal of prejudice against this occupation has grown round this nomenclature. These mistries are generally drawn from practically illiterate classes to whom this is a hereditary profession for which they possess a good deal of natural aptitude. The prejudice is gradually dying out in the case of electrical assistants and a number of our young men have taken kindly to these jobs. But the mechanical section also offers a fair field and prospect. Instances are not very rare of mechanics who, after holding employment for sometime in collieries, have started small independent workshops of their own where they take up repair works of machinery and have been doing fairly well.

Many collieries employ raising as well as labour contractors. Both categories of contractors are mainly concerned with supply of labour. Dealing with the labour force is not an easy job anywhere and therefore colliery-owners and managers often prefer to get rid of a portion of their pre-occupations by making over the labour-handling business to contractors on quite generous remuneration. Although the Royal Commission on Labour recommended in 1930 the abolition of this contract system on grounds which are still controversial, the system persists. Government as well as large employers can hardly do without entrusting recruitment of labour to contractors or recruiters until education will have spread far

more widely than it has yet done amongst our labouring classes. An efficient contractor must acquire familiarity with the ways, conditions and the languages of his labour force and should be generous and sympathetic towards it. Such colliery contractors have made large fortunes and have acquired large interest in collieries. Thirty years ago they were all Bengalis in the coal-fields, but today they have been largely ousted by cleverer, more painstaking and energetic countrymen of ours from other provinces. None of these contractors, Bengalis or non-Bengalis, started with any considerable capital. Some of them are now millionaires through hard work, patience and diligence.

So much for the industry. The coal trade, that is the section which deals with distribution and sale of coal, offers a fairly extensive and fruitful field for employment of my young friends. I do not refer merely to employment in the service of coal firms in Calcutta and elsewhere. I have already said that the only attraction of such clerkships or paid or unpaid apprenticeships is that they offer the requisite training-ground to youngmen with progressive ideas who may just pick up their primary education essential for brokers and middlemen or dealers in coal. There is an idea current that a middleman in any trade is an undesirable person who has no business to butt in between the producer and the consumer and share the profits of

the former and increase the price of commodities to the latter. But a middleman is so indispensable a factor in the distribution and sale of all commodities that his elimination is impossible even if it were desirable. Big producers cannot afford to be retailers. It is inconceivable that a consumer of a few yards of hessian or gunny-cloth or a few pairs of cloth would run up to jute or cotton mills far away from his own place or that a cultivator or a house-builder should run to Jamshedpur from Peshawar or Dibrugarh for his steel implements or joists. It is the business of middlemen to bring together producers and consumers not exactly like match-makers, for permanent union between the two is not to their interest. There are three types of intermediaries or middlemen functioning in the internal coal trade of the country, the broker who operates mostly in big coal marts, mainly in Calcutta, who visits coal producers' and consumers' offices every day, keeps himself well-posted with current prices as well as the demand and supply of coal and sells to consumers or exporters of coal or to merchants, that is, middlemen, and receives his brokerage on each ton of coal sold and delivered. The broker need not invest any money in his business but has got to establish a reputation by pluck, steadiness and honesty which are all the capital he needs. The brokerage per ton is a very small figure but comes up to a decent sum with large turn-over

which depends upon the persuasive capacity and diligence of the broker. He has to face and put up with a stout heart many rebuffs and snubs before he can get into the ranks of successful brokers which is the case in every profession. The field is necessarily very much more limited than in the legal and medical professions.

The other two intermediaries are the coal merchants and the stockists or depot-holders. Unlike most other commodities coal passes directly from producers to consumers in bulk, in a large number of cases through brokers or coal merchants but not necessarily through stockists as in the case of jute or cotton fabrics, iron and steel goods, etc. These commodities are sold and delivered in the majority of cases to large stockists, in the first instance, from production or manufacturing centres and the stockists sell and hand over to retailers for distribution amongst consumers. But most consumers of coal purchase it in bulk to be delivered in railway wagons from collieries to mills and factories. The function of coal merchants is to secure coal as well as likely buyers of coal and purchase from the one in order to deliver to the other. In the process of delivery these coal wagons pass through the hands of sometimes half-a-dozen intermediaries who never actually handle the coal but only the railway invoices and other documents relating to the consignments. These intermediaries or coal

merchants all make some profit out of the coal they purchase with one hand and sell with the other. Nearly 5 million tons of coal pass every year in this way through the hands of these middlemen who, at a moderate estimate, make a profit of eight annas per ton, that is, two and a half million rupees. As in the case of collieries, amongst Indians, Bengalis were the first in this field also, and there had been a few Bengali firms who had their selling agencies spread practically all over India. Now they are no more ; but Indians other than Bengalis have since been doing even more extensive and more successful business in this line. Many of these coal merchants have acquired out of the profits of their business enough capital to start collieries of their own. But I believe it is not in the best interest of the country or society that a few should succeed in amassing large profits to the exclusion of the many, although this is precisely what everywhere happens in all spheres of trade and commerce. How to remedy this state of affairs is a very much bigger question than I am competent to tackle. All I can say is that this business ought to provide decent employment for a much larger number of persons than it has at present been doing. One need not acquire or display any special virtues in order to succeed in this line but has merely to cultivate and turn to account those which every person of average intelligence is endowed with.

A coal merchant has to induce the consumers to place his order for coal with him and secure suitable coal at the lowest prevailing market prices keeping a margin of profit for himself. But those, who want to make a living out of it, have got to fight their way through, must have grit and stamina enough to face occasional reverses and not to be scared away by competition. Above all, he should avoid speculative buying or selling. He does not require any considerable capital to start with. I have known coal-loading inspectors of the rank of peons who, having put together a few hundred rupees, have launched into the coal business in their modest way and acquired considerable success.

Lastly, the stockists of coal who are known as coal depot-holders or coal shopkeepers. The stockists have got to invest usually more money than coal merchants in their business ; there is also a certain amount of speculative element in their business but not more than in all other branches of trade. In Calcutta alone there are hundreds of depot-holders, large or small, who had almost all been Bengalis in the past when there was little or no competition with non-Bengalis, but who have now been all but ousted as in other branches of trade and commerce. The European houses having interest in collieries hold more or less heavy stocks at their depots round Calcutta mainly to supply to the bunkers of steamships and steamers and their own mills and factories and

do not come into competition with the retailers. The Indian depot-holders purchase coal and coke from collieries mostly through merchants and sell mainly to industrial consumers as well as those retailers who cater to the needs of domestic consumers of soft coke. It may be safely assumed that the total annual turn-over of the business of the Indian depot-holders in and around Calcutta is more than a quarter million tons of coal and coke. The many hundreds of 'depot-holders throughout Bengal and other provinces handle more than a million tons of coal every year. The majority of them who are steady and honest make a tolerably good living and some carry on quite a lucrative trade.

The export trade in coal is almost entirely in the hands of the big European mine-owners. Exporters are mine-owners, coal merchants and stockists all rolled into one. They operate in the Indian as well as foreign ports in Burma, Ceylon, the Straits Settlements and occasionally China. There had been a few Indian firms of colliery-owners, at least two of them Bengalis, who were large exporters of coal 25 years ago. Those firms do not exist today. Enterprising young men who can command resources and induce their well-to-do parents to take a reasonable amount of risk may create fresh fields in this line of business for employment of their talents as well as capital now frozen up in landed properties.

My friends, one word more and I have done. In the foregoing lines I have endeavoured to give you only a bird's-eye view of the avenues which the coal industry and trade, as they are today, offer to the educated and commercially-minded young men of our province. But I think I shall not be doing justice to the subject on which I am speaking if I did not make a brief reference to the by-products of coal. They are so many and so varied that even if coal could be eliminated by oil and electricity as source of power, its importance to our national economy would not be a whit less. Some by-products recovery plants have no doubt been started in this country, all by European colliery-owners, and coal-tar, Benzol, and sulphate of Ammonia are being recovered but more by-products are being wasted by the unscientific methods in which coal is being used. Recovery of oil from coal and of dyes and chemicals from coal-tar are yet unknown in this country except through literatures on these subjects; and so also systematic researches, as are being carried on in countries like Germany with a view to recovering various other products. If the Government take up this question seriously I have no doubt such researches will ultimately result in providing as yet untapped sources of employment to our educated young men. Private enterprise could also by combination and pooling of resources bring within the range of practical politics what appears improbable

now, namely the exploitation of coal and its by-products. I can assure my young friends that however unfavourable the circumstances, there should be no cause for despondency. There is almost limitless scope in trade and industry but I must tell you that these are very hard task-masters. They alone thrive in commerce who are tenacious, painstaking and industrious. Our young friends, in order to secure a footing in this trade and industry, or to put it more correctly, to recover the ground lost by Bengalis, would have to depend on their merits, to bring about a change in their outlook and shake off defeatism and look down upon no occupation as too mean unless it be dishonest. It is only a truism to say that enterprise, self-confidence and honesty play more important part in business than capital. To our educated youth who are aware of the miserable plight of this province as well as of the unnatural and unenviable position of Bengalis in the commercial and industrial structure of Bengal it ought to be an additional incentive to recover the position once held by their forbears and secure their rightful place in the coal trade which is a major product of Bengal. Is it too much to expect of the young men of Bengal that they would switch on a part of the dynamic interest they had shown in the recent past in the political arena to the economic sphere? Their elders have so far lamentably failed ; they have looked with unconcern on the curious

phenomenon of all branches of trade and commerce in Bengal being occupied by all except those who ought to have a legitimate place there. Surely non-Bengalis have not manoeuvred themselves into these places by force or by fluke or fraud ; we have scarcely shown any fight and have continually yielded ground. I would request my young friends to take a leaf out of the book of those adventurous countrymen of ours who come from a thousand miles distance with no more capital than their pluck, industry and a will to win through. Their task is as uphill as yours and if they can work their way up, so can you.

My friends, I wish good luck to those amongst you who intend to take up a commercial career after you have finished your studies at the University.

BUSINESS CAREERS

By Sir Edward Benthall, Kt., M.L.C.

Senior Partner, Bird & Co. & F. W. Heilgers & Co.

I am very pleased to have the opportunity to come here today to address you on the subject of business careers, because I am convinced that the University authorities are entirely on the right lines in adopting the method of arranging for businessmen to express their views to you on this subject. By this means they will draw your attention to the necessity of educated young men in this province turning their minds to business careers if the people of Bengal are to hold their own in competition with the other provinces of India. The resolute determination to encourage both elders and students to appreciate the importance of this aspect of provincial development is, in my opinion, one of the most important movements in recent years to help Bengal and the Bengalis, and as a lay man, if I may, I would like to congratulate the present University authorities on their progressive policy.

It was in the spring of 1936 that Dr. Syamaprasad Mookerjee first came to me, as President of the Bengal Chamber of Commerce for the time being, and asked me if we would help him in the furtherance of his ideas. The letter which he

addressed to me on the 14th June of that year and the subsequent correspondence have been published, and these letters set out in full detail the principles over which we were in substantial accord. I would suggest that all who are interested in trying to turn the mind of the younger generations in Bengal towards the uplift of the province in the business sphere should once again study that * correspondence which ventilates the objects to be achieved.

One development has been the setting up of the University Appointments Board. For reasons which I shall develop later on in my speech the functions which this Board can perform are naturally limited, and it cannot be expected that the Appointments Board should be able by some magic to find early employment for all the young men who have applied. Nevertheless the Appointments Board stands as a symbol of the desire of the University to help young men to take advantage of the education which they have received and of the sympathy of the business world of Calcutta towards the movement. It is also an ever-present symbol of the necessity of making your educational training practical, and as the Appointments Board is able to bring home to the University authorities the essentials which are required for business careers, it is possible

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* Printed as Appendix—A

that in due course the Board will not be without influence upon the educational system itself.

Now if you are to make progress towards successful achievement in business careers, it is necessary first of all that you should study yourselves and realise the present weaknesses. In the opening address of this series Acharya P.C. Ray gave a striking and courageous analysis of the reasons underlying the lack of business enterprise among the Bengali people today. There is no need for me to repeat the lessons which he brought out, but I would counsel you in the years to come to take them to heart, for he is one of the leaders whom you look up to and trust. Do not, I beg you, forget them next week. Let those remarks be written on your hearts and you will have taken the first steps on the road to business prosperity in Bengal.

It is right to draw your attention to this necessity, for in 1919 the Calcutta University Commission pointed out the underlying causes which were affecting the prosperity of Bengalis in the business world, and their advice was neglected. The leaders of those days took no heed of the warning which was given to them, and I beseech you as students, and your elders also, to pay attention now to the second call to action. For this attempt to change a nation's mentality may be doing more good for the province than anything else in helping the youth of Bengal to arm themselves for the battle of life. I beg you, therefore,

to take the situation to heart and remind you of the words of Dr. Mookerjee's great father, Sir Asutosh, who on one occasion said: "There never was a nation great until it came to the knowledge that it had nowhere in the world to go for help." Let that be your motto. You must help yourselves in this matter of business careers, because it is essentially development in which no one else can really aid you.

When I was asked to address you on this occasion, the first question that I set myself was: How can I encourage you most to succeed in your business careers? Others have spoken with great clarity and ability on particular industries, on the Tea industry and the Coal industry, and other experts of equal ability will address you on other industrial subjects. So I thought that I could best make use of this opportunity today by dwelling on more general aspects of the problem and particularly upon some of the individual qualities which go to make for success. To do so, it is necessary to speak very frankly.

Any one in my position is faced daily with the distressing nature of the unemployment question. Every day at my house and in my office there are young men waiting in the hopes that we can find them a job, and by every post applications pour in. It is one of the sorrows of life to the head of a business firm in Calcutta that he is unable to help one-hundredth part of the men

who apply to be given a start in life. One cannot but have the greatest sympathy with these men and we try to help them to the best of our ability, but of course the applicants far exceed the number of posts, and it is disappointing to find how few have any idea beyond finding a clerical post in the organisation.

Then again a businessman in Calcutta is frequently approached by people who desire to become commission agents—who think that big firms have work to give out on the basis of patronage. That is not so. No business can carry on in these days of acute competition except on the most efficient basis, and suppliers can only get work by supplying goods of the best quality at the cheapest price. There is no room in modern business for rake-offs for people who render no service. It is the same with broking: a broker has to be efficient, to be in a position to give good advice and to be an intermediary for delivering goods or arranging business in the most efficient possible manner to the satisfaction of both principals. There is no room for patronage or inefficiency in broking or any other business, and it is useless to expect to find prosperity in the business world unless you are prepared to rely only upon yourself.

Now the merit of Dr. Mookerjee's scheme is that it is an attempt to turn the mind of the youth of Bengal to a more self-reliant attitude—to a

change of outlook. Let me quote Dr. Mookerjee's own words to you from the letter to which I have referred :—

> "At the present moment the outlook of the average Bengali youth permits him to think of nothing else as his possible career but some paid job which will keep him attached to his desk. He is often reluctant to take the trouble or risk of doing anything else. A spirit of enterprise and adventure is lacking, perhaps due to want of confidence, which again is not always the fault of any individual. It is partly the fault of the system under which he has been brought up which offers him no real opportunities and partly the resultant effect of his environment and surroundings. It is a happy sign of the times that ideas are slowly changing and everyone realises the perils of the existing situation. I do not think that a general change of mentality or outlook can be altered by one stroke of the pen, nor do I think that it is capable of being achieved through the agency of the University alone."

It was in support of this wise policy that we, European business interests, taking into consideration the claims of other educational institutes and associations, promised to do what we could to help to train young men to set up business on their own account. We pointed out the limitations for openings in existing firms and stressed that the present state of unemployment was not so much due to the lack of opportunity afforded to young Bengalis in business openings as to the lack of training in the essentials of business success instilled into them in their homes and colleges. But we

endeavoured to do what we could to provide some practical training for men selected through the Appointments Board, and since that date many firms have co-operated in endeavouring to give an opportunity to young men to learn from instruction inside our own businesses something of the methods which we employ to achieve success.

We have also tried to encourage good men by giving them a preference in any openings that may exist. In my own firm now-a-days no new applicants are taken on haphazard but so far as possible they are recruited, if of the graduate type, through the University Appointments Board or similar institutions elsewhere ; and for recruitment to the clerical grades we have periodical examinations consisting of a series of simple questions in elementary business requirements and also some not very difficult questions on general knowledge to test whether the applicant has been able to make use of the education of which he has had the benefit. We attach the greatest importance to the latter and to our general estimate of the applicant's character, and you will surely agree that it is both in the interests of our own firms and also in the interests of Bengal itself that the greater encouragement should be given to the more efficient.

I will try, before I finish, to tell you what, in my opinion, constitutes efficiency.

But before I come to that point I would just like to analyse for you the constitution of the staff

of a business firm like my own. I think by this means I may drive home to you how large a part technical qualifications count in an industrial firm such as the one with which I am connected, and how little reliance is placed upon academical qualifications.

We have some 310 Europeans on the superior staff of my firm of whom some 250 were recruited on account of technical qualifications and experience, such as early training as mining or civil engineers, accountants, jute and paper mill experts and so forth. The number of University graduates among the total is very small indeed: most of us have graduated in the school of practical experience starting into our business career when we left school.

I am not saying that a man with University training has not got advantages: obviously he should have, but it depends upon the use he can make of his training, and to set against academic advantages he will have lost an equal number of years of hard practical training. The fact is that there is room for both, but it is clear from an analysis of what must be a fairly typical business organisation that the man with technical experience has four times the greater chance of obtaining a post than the man with academic training only.

When a man comes to us, we hope that he will spend his whole working career with us so that it is obvious that for men with no technical

qualifications there can only be some three or four vacancies a year. The opportunities of placing men with purely academic training are not therefore great.

I have not been able to analyse the qualifications of the Indians on the superior grade but a much higher proportion are graduates, the reason being that we have been able to find more jobs for people with a scientific training in chemistry, geology and so forth, but clearly the scope for employing more men with such qualifications is strictly limited. I would certainly say that for some posts a University training is most desirable but the most successful are those who have taken practical advantage of the opportunities given to them in the business. If we can average 4 or 5 graduate recruits a year, it is as much as we can expect to do.

Lastly there are the clerical staff, of which we employ some 3,000, with a few rare exceptions, all Bengalis. There is nothing to hold any man back from rising to the highest positions but not more than 1 per cent. of these can in fact expect to rise above clerk's pay. It is of course the same in other countries also to a large extent, but the proportion of those who progress is for various reasons much higher elsewhere.

I have quoted these figures to show you that it is impossible by any stretch of imagination to expect that European business houses in this province

can do much directly to slove the unemployment problem for graduates. We can perhaps do something further to assist with training men to start on their own and that we are trying to do, but in practice it is no easy matter to set a graduate alongside ordinary workmen to enable them to learn the job.

It is possible that more might be done by arranging for selected boys to go abroad to England for practical training in special technical lines at their own expense on the understanding that if they are successful and are well reported on, they will be given openings on their return. My own firm have given this undertaking in respect of several boys sent Home to learn jute manufacturing. It might also be a useful opening for State or University scholarships.

We will help you as much as we can, but if you are to grasp the opportunities which are before you and to re-establish the rightful place of Bengalis in business in Bengal, you must not be content to serve others but must branch out also into your own businesses.

If by anything that I can say I can kindle within you a spark of determination to achieve success on your own in the business world and to point you the way to compete with ourselves and other business communities in Bengal, I shall be well satisfied. We have a maxim: "Let the best man win." We strongly disapprove of a

certain class of political business activity on the part of men who try to oust my community or other Indian communities out of business by unfair means, but I can assure you that all European businessmen welcome competition, if it means expansion of Industry and Commerce on right lines. A well designed extension of any part of the industry or commerce of this country is bound to result in greater prosperity for the whole, for commerce and industry, though competitive in one sense, are also based on co-operation, so that, provided the general underlying economic conditions are sound, increased prosperity for some leads to increased prosperity for others.

And now I will try to analyse for you the question: "What are the qualifications for success?"

Many years ago, when I first entered into business, I jotted down some maxims uttered by a very well-known business leader on a similar occasion. These have often and often come back to my mind since, and I cannot do better today than to repeat them with the addition of certain comments of my own:

1. *Eliminate the word "perfunctory" in any task. Your work in any task will testify in some way for or against you.*

On this maxim I would comment that undoubtedly the successful execution of any plan or policy

in any walk of life depends largely on minute attention to detail. And that is no less true of business than of other careers. Hard work continuously is the only way to business success and mere presence on the job is not sufficient, for it is not the hours you put in that count, but what you put into the hours. If you put all that is best in you into your work, however unimportant it may seem, you are bound to be noticed by your superiors and you will have taken the first step to promotion. Opportunities will follow either for advancement in the business to which you are apprenticed or to start your own concern. One reason why so few people recognise opportunity is because it is disguised as hard work. Sooner or later a chance will come and then you must seize it with both hands.

2. *The most serviceable of all assets is reputation. It works twenty-four hours a day for you.*

The most valuable asset you can possess in business is credit, which means the confidence of other people in your character. If people trust you, even though your resources are not great, they will give you credit. If, for instance, a Bank trusts your individual character, they will advance you money against far less security than if they have any doubts about your integrity. If indeed there is doubt about the latter, you may not get credit on any conditions whatsoever. Credit is earned by a

lifelong adherence to the truth. One slip and your credit may be ruined for ever, just as once a man has taken a bribe his credit is for ever gone.

Remember, too, that if you are to become associated with the management of public companies, you will be in a fiduciary position and will have to carry the confidence of the shareholders. Your greatest asset will be their trust. Things may go wrong, but whether it is through your own mismanagement or through sheer bad luck, they will trust you if you are straightforward with them and their confidence will stand you in good stead.

3. *Think. Exercise your brain as you do your muscles. Practise a mental "daily dozen."*

The most valuable thing which the education that you have received up to date can have taught you is how to think. It is probable that very little of what you have actually learnt in the way of facts during your academic career, will be of any value to you whatsoever in a business career, but if you have learnt how to think for yourself and how to apply the knowledge that you will constantly be picking up throughout life, you will go on learning things of value. In business one never ceases to learn, and you can learn from studying the means and methods of other communities such as the Marwaris or Europeans. We have no more than you in the way of mental equipment, and often very much less. But in business the possession of

a degree in itself is of no value whatsoever. The value lies in the extent to which your mind has been trained in the course of your academic career to correlate values and to form a sound judgment.

4. *Go for a ride on the horse of your imagination occasionally.*

It is a good thing to dream dreams, but as the poet said, it is better to " do lovely things, not dream them." You cannot build a reputation on what you are going to do. Dream dreams occasionally by all means, but rely on your own activity to make them come true. Let one of your dreams be to be master of your own business or head of the company you serve, but live to make it come true.

5. *Be ready, but know how to wait. Persevere in the face of hope deferred and of plans thwarted.*

You must at all times retain your ambition, but not that " vaulting ambition which o'erleaps itself." Ambition must be controlled just as if you are to reach the highest class at a game like tennis, you must learn to control your speed. And if disappointment comes—and it is bound to come—remember that it should be taken as a stimulant and never as a discouragement. The other side of an emergency is always an opportunity.

My father-in-law, Lord Cable, used to keep pasted into a drawer of his desk the following

quotation from Robert Louis Stevenson: "The conditions of conquest are easy: we have but to toil a while, endure a while, believe always and never turn back." A motto which served him well may serve you also.

6. *Be hard-headed but not "hard-boiled."*

The most valuable asset in any business is judgment. You must learn to be an optimist in adversity and to practise caution in times of prosperity. You must learn when to go forward and when to halt, when to be firm and when to be conciliatory. Someone once asked one oft he Rothschilds how he accumulated such a fortune, and he replied by saying: "By always selling out too soon." He had learnt that you can never expect to sell all that you have got to sell at the top of the market, and if you try to, you will find that others have decided to sell before you and that the market has fallen away. Fortunes are lost by those who get swept away in a flood of popular optimism or pessimism: they are made by those who can coolly and calmly judge when the popular opinion is wrong.

Judgment is not learnt from books, it is learnt by observation and analysis of the world around you. You should at all times be asking yourself such questions as "What is the reason for this?" —"Can I do that better than it is being done

already?"—and so on. The answers to these sorts of questions do not lie in books but in your own powers of close observation and your own balanced judgment. Use your brain in close conjunction with your eyes.

7. *Do not spare yourself, but do not become a machine. Whatever your ideals are, keep them. They are an asset of true value.*

One of the greatest assets which you can possess in business is self-reliance. You must be prepared, as the Finance Member for Bengal was saying to the students of the Commercial Institute the other day, to assume and discharge responsibilities. You must give up seeking a job that carries the least trouble and the least risk. In fact I would go further and say that the people of Bengal must be prepared to incur greater risks if they are to hold their own with other communities in the business world. The obsession for landed property is a mistake, and the system of land tenure which allows too many people to eke out a living without the need to work or venture, has been the bane of business in Bengal. It is undoubtedly a fact that many a family business in Bengal has been abandoned because of the risk, and until those who have the power and the money are prepared to take more risk, business must stagnate. All business is a venture, and in business risk is unavoidable, for, as Dr. Johnson said: "Nothing

will ever be attempted if all possible objections must be overcome first." The man who succeeds is the man who sums up the risks with the greatest ability and makes the fewest mistakes. No business man ever succeeded without making some mistakes: it is from them that he learns.

8. *Take an interest in public affairs. Protect from demagogic assault the things which by test and trial have been found worthy of preservation.*

Never accept anything just because you are told it. Be careful to avoid the attractive slogans of people who would be thought to offer you an easy millennium. Their remedy for the ills of the world are so often meretricious. Think for yourself, estimate in your own mind what things in your daily life are good at heart and worthy of preservation, and be prepared to work for them. And never accept a statement without personally analysing it. As soon as you can say what you think, and not what some other person has thought for you, you are on the way to becoming a remarkable man.

9. *Meet your fellow-men with confidence. Scepticism and mistrust beget aggression. Confidence begets goodwill.*

A sense of co-operation and of loyalty will be two of your biggest assets in a business career.

It is very easy to be selfish in business but there is no real need for a selfish policy. Measure your success by the work done, not by the money you have made at the expense of others.

And you will forgive me for saying that one of the biggest reasons which prevents progress in the Bengal business world is the lack of co-operation between different interests. I make no apology for stressing this point, because it has already been made by Sir P. C. Ray in his first address. You will have seen recently the value of co-operation among the managing agents of the jute mills. For some years this has been lacking, but the moment co-operation returned to the industry, as if by magic the trade has taken a turn for the good of all. Some of this spirit is needed in many other trades today, notably in the coal trade. It was said by one of the greatest organisers of business in pre-War Germany that he "made it a principle never to tie an unwilling partner to an agreement which the latter considered to be detrimental to his vital interests, and he would only approve of an agreement if both parties felt satisfied that they had done a good stroke of business by concluding it." That is well worth bearing in mind, and you will find over and over again by experience in the business world that a lean compromise is better than a fat law-suit.

And remember that all joint-stock enterprise is based upon co-operation and trust. In the early

stages of business development a few people who trusted each other came together to pool their resources in a partnership. Joint-stock companies are mainly an extension of that, and for their success trust is necessary. The shareholders must trust the management and direction, and those who are responsible for the management and direction, must above all earn the trust of their shareholders. If Bengal is to advance in the business world, you must do much more to pool your resources and to trust your own business leaders who have earned your confidence. To you who have a business career in mind an immense field lies open in the development of joint-stock enterprise on these lines, but the prime necessity is mutual confidence.

10. *Like everything worth having in life, success has to be paid for by assuming and discharging responsibilities.*

I have already touched upon the lessons of this maxim in my remarks above, but remember this that most problems of trade are settled by the exercise of personal courage and imagination. You should never be satisfied with a cheap success, and if you meet with a real success, remember to keep your head. Some people grow under responsibility, others merely swell, and the moment you

estimate your success at more than it is worth, you have taken the first step backwards.

Those were the maxims of a great leader. You will not be able to carry them all in your minds, but I understand that some part at any rate of these addresses are being reprinted, and if you will study these maxims—maxims which apply anywhere in the world—perhaps they may help you a little hereafter in your business careers.

TEA INDUSTRY AND TRADE

. By Debes C. Ghosh

Indian Tea Planters' Association, Jalpaiguri

Tea, as is known, is prepared from the young leaves of the plant Camelia Thea (*Thea Sinensis*), a shrub extensively cultivated in China, India, and Ceylon and to a less extent in Sumatra, Java, Formosa, Japan, French Indo-China, Nyassaland and in some parts of Africa.

The tea plant is a bushy shrub which, when left to its natural habit of growth, attains considerable height. The leaves vary considerably in size and shape Oil glands occur in the substance of the leaf and contain an essential oil to which the flavour of tea is largely due.

Origin of Tea

Tea had its origin in China but its early history is lost in the obscurity of China's venerable antiquity and most part of it is traditional. Everything known of its origin is so fabulous that it is extremely difficult to try to trace facts with precision.

Dealing with its prehistoric period, the legendary origin of tea, as taken from Chinese sources dates back to about 3000 B.C. According to Mr. Samuel Ball, the Chinese ascribed it to the reign of a legendary Emperor Shen Nung who

lived about 2737 B.C. In Shen Nung's Pen ts'ao or Medical Book, a reference reads: "Bitter tea is called ch'a. It grows in winter in the valleys by the streams and on the hills...It quenches thirst...it lessens the desire for sleep. It gladdens and cheers the heart."

Another theory attributes a tea reference to the Shih Ching or Book of Odes edited by Confucius about 550 B.C.

What is sometimes considered as evidence of the early cultivation of tea in the Szechwan district is to be found in the legend of Gan Lu. The legend is that Gan Lu returned from Buddhistic studies in India during the later Hun dynasty, A. D. 25-221, bringing with him several tea plants which he planted on Meng mountain in Szechwan.

There are others, however, who doubt whether after all the true home of the plant is China or in the neighbouring Indian province of Assam.

The earliest reliable reference is contained in a Chinese Dictionary dated about A.D. 350 annotated by Kuo P'o, the celebrated Chinese scholar, adding 'a beverage is made from the leaves by boiling.' The tea drink of Kuo P'o's time was a medicinal decoction. Late in the sixth century the Chinese generally began to regard tea as something more than a medicinal drink. By the time of the Sung dynasty, A.D. 960-1280, tea was used throughout all the provinces as a beverage.

After the cultivation of tea had spread through the provinces, it attracted the attention of travellers from other countries. The first country that thus acquired the knowledge of cultivation of tea was Japan. Actual tea cultivation was introduced by Japanese priests of the Buddhist religion who became acquainted with the cultivation of tea while pursuing religious studies in China. Tea drinking came into fashionable vogue after the 10th Century A.D.

Introduction of tea into Europe

Tea is one of the great temperance drinks that the East shares with the West. Cocoa was first introduced in Europe in the early sixties by the Spanish ; about a century later tea was brought by the Dutch (1610 A.D.) and a few years later Venetian traders introduced Coffee.

In 1610, we find, tea was first introduced into Europe from China by the Dutch and Portuguese travellers but made its appearance in England about 1641. With the coming to England of Princess Catherine of Braganza known as the " first tea-drinking Queen," the Portuguese Princess who married Charles II in 1662, tea became a fashionable drink for the ladies of England.

There is a story in Mr. Ibbetson's book " Tea " which states that a package of the commodity was received by an old couple in England during the reign of Queen Elizabeth and that instead of

infusing the leaves and using the extract, they threw away the coloured liquid and ate the leaves after spreading them upon bread.

From records available it is found that in 1657 the tea leaf and beverage were first publicly sold in England by Thomas Garway, at his place in Exchange Alley. For the benefit of customers who desired to make the drink in their homes or elsewhere, he offered to sell the prepared leaf at 16s. to 60s. a pound.

While tea was being carried into Western Europe over water routes, overland caravans were carrying it into other parts of Europe. The first tea to so arrive was a gift of several chests brought by a Chinese Ambassador to the Russian Court in Moscow in 1618, but regular importation began only by about 1690 A.D.

The first tea was introduced into Germany by way of Holland in 1650. The Scandinavian countries became acquainted with tea about A.D. 1616. Tea is said to have appeared first in Paris in 1635. In Holland the apothecaries sold tea by the ounce along with sugar, ginger and spices. Its use in the Netherlands became general about 1660.

Possibly the first printed reference to tea in English calling it 'Chaa' appeared in 1598 in Linschooten's Travels, an English translation of a work originally published in Holland in 1595-96.

It is generally assumed in many quarters that the use of tea was brought to America from

Holland and the Dutch New Amsterdam was the first American Colony to drink the beverage about the middle of the seventeenth century. During the first half of the eighteenth century tea rooms were added to the coffee houses and taverns.

Tea was probably used to a limited extent in the Massachusetts Colony as early as 1670. It was first sold at Boston in 1690.

William Penn is credited with the introduction of tea into the old Philadelphia in 1682.

From the very beginning tea was rather favourably received by the people in all the countries. The French missionary Jacques de Bourges wrote in his "Relation of the voyage of the Bishop of Beryte to Cochin China" thus:

> "We drank some tea......we found it very wholesome, and comparing the effects of this tea with those of wine......it is doubtful which of these two may obtain pre-eminence if not this leaf."

Dr. Nikolas Dirx (1593-1674), a celebrated Dutch physician, was one of the first Europeans to sing the praise of tea. The eulogy of tea in his 'Observationes Medical' reads:—

> "Nothing is comparable to this plant. Those who use it are for that reason alone, exempt from all maladies and reach an extreme old age. Not only does it procure great vigour for their bodies but it preserves them from gravel and gallstone, headaches, colds, ophthalmia, catarrh, asthma, sluggishness of the stomach and intestinal troubles."

From these accounts you should not conclude, that there were no adversaries of tea. Jesuit Martino Martini, a German, claimed that tea was the cause of the dried-up appearance of the Chinese.

Mr. Jonas Hanway in his *Essay on Tea* (1756) wrote :—

> " Men seem to have lost their stature and comeliness and women their beauty...
>
> " What Shakespeare ascribes to the concealment of love is in this age more frequently occasioned by the use of tea."

Tea's conquest of other Countries

Gentlemen, I would now briefly deal with the production of tea in other countries with special reference to India.

For many years it was thought that tea could not be grown in other countries except in China and Japan.

Java: The Board of Directors of the Dutch East India Company made certain representations to the Government of Netherlands India in 1728 arguing that China Tea seed should be sown in Java but the idea did not receive much encouragement at the hands of the Government. About a century later, however, a Chief Commission of Agriculture was organized which supported agricultural enterprises and thus the first stage was set for tea culture at Java.

Inspite of a comparatively good start, the tea industry remained insignificant in Java till about 1860 when private enterprises were started.

Sumatra : At first a few plots had been opened in the Pasemah and Semendo districts and the pioneers benefiting by the experience gained in Java and the soil being found suitable, made rapid progress.

It was only in 1906 that tea planting was demonstrated to be a remunerative propostion. Much of the success of Tea culture at Sumatra was due to the initiative, energy and enterprise of the late Mr. Arthur Lampard, Director of Harrisons & Crossfield, Ltd.

The first sample of tea was sent to London in 1911 where it received a favourable report.

India : You are all aware that Indian Tea has now penetrated all the countries of the world where tea is grown or used as a beverage. It has replaced the China *jats* in Ceylon and Java. It has forced cocoa to the background in all the European countries and even in China and Japan, Indian Tea is favoured by many, not only foreigners but also by the natives of the places. I would now deal with the progress of tea culture in India.

It is often said that the English East India Company owed its birth to pepper but in reality its amazing development was due to tea. Its early adventures in the Far East brought it to China

whose "Tea was destined later to furnish the means of governing India" and to obtain the world's greatest monopoly.

As has been mentioned earlier in my speech, tea was indigenous in India. China tea seeds and tea plants were no doubt imported specially with the development of communications and indeed tea plants have been found near the important caravan routes between India and China. The typical China plant of East and South-East China has suffered less blending while Assam and North Bengal teas have been subjected to much outside influence and teas in the Shan States of Burma and Siam are mostly hybridized.

It has been generally accepted that the first tea culture in India was made with China tea seeds and plants.

At the request of the Court of Directors of the East India Company, a series of memoirs were prepared by Sir Joseph Banks on the methods to be adopted on the cultivation of the tea crop in India but political and commercial objections connected with the Company's highly profitable tea trade with China prevented the carrying out of his projects. Governor-General Lord William Bentinck appointed a Committee to enquire into the possibility of introducing China tea plants in India. In early 1834 the historic Tea Committee was formed and its duty was to submit to the Government "a plan for the accomplishment

of the introduction of the tea culture into India and for the superintendence of its execution."

It will not be out of place to reproduce extracts from the report of the Tea Committee to the Government made in 1834. The Committee wrote :—

> " It is with feelings of the highest satisfaction that we are enabled to announce to His Lordship in Council that the tea shrub is beyond all doubt indigenous in Upper Assam, being found there through an extent of country of one• month's march within the Hon'ble Company's territories trom Sadiya and Beesa to the Chinese frontier province of Yunan..."

The first consignment of Indian tea was despatched in 1838 and aroused the greatest interest in London. The first lot was knocked down for 21s. per pound, the second lot for 20s. per pound and another for 24s. per pound. A lot of Assam Pekoes was knocked down for a fabulous price of 34s. per lb.

The first Joint Stock Tea Company, the Bengal Tea Association, was formed in 1839. The success of this Company encouraged many others to come forward with large capital and by 1860 about 50 private Companies were formed. The first Indian Tea Company, The Jalpaiguri Tea Co., Ltd., was started in 1875 and soon after others followed, opening up gardens mostly in the Dooars and some in Assam and the Terais.

Ceylon : At present Indian interests represent about 16 per cent. of the entire capital invested in

Tea in India. From the early nineties coffee was produced in Ceylon and in course of a few years large districts were converted into cultivated forests of young coffee trees. But due to rash speculations there was a great slump in 1845 when attention was diverted to growing tea instead and experiments were made with Assam indigenous and China seeds. Then came the coffee leaf disease in about 1875 destroying many coffee estates and these old coffee lands were changed into tea plantations. By 1895 more than three hundred thousand acres were under tea and to-day Ceylon produces the finest quality Teas that reach the world's markets.

Tea in various forms

Gentleman, Tea, as you know, is a commodity marketed having the appearance of burnt leaves black in colour. This is what is known in the trade as " Black Tea." Besides the above, there are other kinds of Tea known to the trade as follows ;—

(*a*) Green Tea.
(*b*) Brick Tea.
(*c*) Oolong.
(*d*) Pouchong.
(*e*) Pickled Tea.

I do not give out any secrets when I endeavour to explain all these various kinds of tea.

Green Tea is unfermented preparation of Tea. Both the look of the Tea and its liquor have got a green colour.

The principal markets for Green Tea are Kashmir and Baluchistan in India, Afghanistan and the Central Asia. Of foreign countries America consumes a large quantity of Green Tea.

Brick Tea

Brick Tea is a special preparation of Tea in block form. The particular market of Brick Tea is Tibet. Most of the Brick Tea is prepared in China and traded by land routes, some portion being transported through India. Some quantity of Brick Tea is manufactured in the Northern Bengal Tea Estates.

Oolong and Pouchong

These Teas comply to a specification being partly fermented and have got partly green and partly black character. Such Teas are manufactured mostly in Formosa and partly in Japan. The principal outmarket for such Teas is U. S. A.

Pickled Tea

In the Shan States in Burma the Shan tribes pickle the leaves and make what is known as " Leppet " Tea which is not exported.

Extent of Tea Areas

Barring India and China, other principal tea-producing countries of the world are Ceylon and the Dutch East Indies. In recent years states in the Union of South Africa have opened out plantations and the Soviet Republic has also opened out extensive areas in Georgia in the Caucasius. To appreciate the gradual growth and development of the Tea Industry these figures are of absorbing interest.

The position of Tea in India, the number of plantations with relative acreages and the total crop manufactured have already been discussed. It would interest you to know the numerous plantations that exist both in the Punjab in the North and in the Nilgiris and Coorg in the South. The Punjab estates mostly grow Green Tea for Frontier trade and their produce penetrates into Afghanistan and Central Asia and the neighbouring countries by land routes.

Value of Tea Trade

The export of Tea by different producing countries, from 553·4 million lbs. in 1899 to 953·7 million lbs. in 1937 illustrates the gradual conquest of Tea and its march of progress as one of the principal trading commodities.

The total value of Tea exported by India is in the neighbourhood of twenty crores of rupees and

roughly represents one-eighth of India's total foreign trade. Amongst India's exportable commodities the position of Tea is next to that of Cotton and Jute and is one which goes a great way in improving a favourable trade balance of this country.

As the most organised agricultural commodity in the country Tea occupies a unique position. Tea engages about a million labourers in the numerous plantations scattered all over the country.

Local Management

The estates management lies with a manager who works with several assistants in the garden and in the Tea factory. At present promising youths are recruited and practical training is given to them in the plantations. By exhibiting marked ability such recruits gradually occupy more responsible positions and eventually come to the helm of affairs as managers of estates. At the present moment there is no special course of training for newer recruits to quickly assume such responsible positions. A course of training may be initiated in the new Department of Agriculture of the Calcutta University which should impart adequate knowledge in Plant Physiology, Entomology, Mycology, Soil Sciences, Chemistry of Tea and practical handling of Labour. If the Tea Industry can adequately assure the University to take all successful students

coming out of this special course, I feel it may be worth while for the University to inaugurate such course. By turning out newer recruits with modern outlook and advanced knowledge, I believe they will become more useful men in the plantations.

Employment in plantations is not only confined actually to the Tea areas but contractors who are engaged by the plantations in their building, transport and other works provide ample scope for employment.

Development of Land and Water Transport in a scientific manner is a crying necessity in the country. Motor transport can render very satisfactory service to the commercial community. Whereas the usual principal carrying agents, *viz.*, Railways and Steamers, take your goods and commodities from their own stations, motor transport takes the commodity right from the factory and effects delivery right to the export godown and thus many unnecessary expenditures in intermediate handling and "dick and worry" are avoided. In America, I have seen goods being carried for over 2,000 miles in big motor vans across the country. Motor transport has become a true competitor of the Railways. The agency of motor transport has opened out the country to a great extent and from railheads it has penetrated into the innermost recesses of the land.

When I think of the Province of Bengal with its numerous water routes and of its past history, I cannot but visualise the establishment of a water transport agency throughout this province. In the old, numerous inland stations, *e g.*, Tamluk had special significance as internal Port. Bulk distribution of goods and commodities from the Port, *e.g.*, salt, kerosene, coal, cloth, sugar and piecegoods, etc., penetrating into the country and crops and produce, *e.g.*, jute, paddy, mustard and grains, tea, tobacco and other produce of the soil coming up to the port in the returning boats is no vision. I expect that as a result of the enquiry initiated by the Local Government to develop the inland waterways of Bengal, inland water transport agencies should be gradually developed and firmly established. I can well commend to those of you with vision and energy to come forward and fulfil a scheme of gradual development of this country on lines I have indicated above.

Channel of Trade

The products of the estates are sent out for sale in the Tea auction rooms. Such auction rooms are situated in Calcutta, Colombo, Batavia and London. London is the international clearing house of Tea. Of the total Tea which is available for world markets about 75% Tea are sold or pass through London and of which 60%

are absorbed in the United Kingdom and goes directly into consumption.

In the city of Calcutta Tea auction rooms are situated in the Mission Row and correspond to the Mincing Lane of London. During the Tea season weekly auctions of Tea consignments are held in Calcutta. I would not endeavour to give you a picture how the entire trade is held but will only give you an outline of the trade practice.

The tea consignments from the estates reach the Calcutta Port and are kept in the warehouses at Kidderpore. From the garden invoices, the Tea Brokers draw samples from each individual chest. Such invoice samples are then distributed to the buying firms who examine the samples, value them and come out prepared to bid at the auctions.

Marketing and Distribution

Tea Brokers play a very important part in the marketing and distribution of tea. In London, a group of brokers operate on behalf of selling estates and agencies and another group of brokers operate on behalf of the buying firms, grocers' alliances and the wholesale trade. In Calcutta both of these functions are performed by one set of brokers.

In Calcutta there are only 4 European firms who work as Tea Brokers. Besides making valuations of garden invoice teas and supplying

them to the selling agencies, estates and buying firms, they also openly bid at the auctions on behalf of the buying firms.

To be a tea broker a person must learn tea tasting fully and should be an expert in this line. With the limited business passing, it is doubtful whether any new scope of employment presents here.

Tea Tasters : Tasting is an art specially learnt by the tea brokers and buyers. Actually the liquor of the Tea is tasted and by gradually cultivating keenness a buyer can precisely value tea and tell us about its quality. Tea Tasting can be learnt from either the Brokers' houses or from Buyers' firms by a course of apprenticeship. A good Tea Taster is greatly in demand in the trade.

There is no special technical qualifications required for a Tea Taster. What is required is a long period of apprenticeship in a firm of tea brokers or in a tea buying firm.

A Tea Taster can easily get a salary from Rs. 600 to Rs. 1,200 per month. A limited scope of employment is available in this line.

Tea Blenders : Blending is an art which is gradually acquired with experience. By being able to mix teas of different qualities and prices which should suit the pocket and must conform to water conditions so that the liquor is well drawn

out and becomes palatable to the taste—this special art of Tea Blending is a principal necessity for the distribution trade. A good blender can always give you the same tea you drink.

As in the case of tea taster, a blender has got to learn his job after he has learnt tea tasting well. Tea blending can be learnt by a long course of apprenticeship in a large buying firm. A good blender can always get an initial salary of Rs. 1,000 per month.

Tea dealers are generally those people who function in the distribution and marketing side of tea.

To become a tea dealer one should generally learn how to value the tea and if possible wet or dry tea tasting. The amount of capital to be invested for this purpose may be big or small although personally I would prefer the latter. Any young man with initiative, energy and persuasive manners can prosper in this line. The scope in this line is immense and this is daily increasing.

For the purpose of Indian and Persian markets the trade values tea from appearance and without drawing the liquor. This is what is termed as "Dry leaf" tasting and valuing. By continuous application and apprenticeship you may gradually value tea by appearance.

Graduates of the Indian Universities can very well start an apprenticeship career either as

Tasters or Blenders and can also start a career as a dealer if suitable opportunities are available. To those who are keen on taking to any of these careers I would say that they should try to get suitable apprenticeship training in suitable firms obtaining admissions through your University's Appointments Board.

Buying Agencies and the Distributing Trade

In all principal centres, *e.g.*, Calcutta, London, etc., there are certain principal buying firms. In Calcutta, there are a few European Houses and several Indian Houses. These buying firms operate on behalf of numerous firms and agencies in the international markets and also within the country. They mostly buy on orders and advices received from their clients and ship goods to destination in terms of advices received. The principal countries to which Indian tea is exported are United Kingdom, Germany, Canada, U. S. A., Iran, etc., and barring U. K., where such Tea is mostly sold for the first time, in most other countries the Teas go for consumption.

The scope as a Tea dealer both in the internal and external markets is immense. As I am indicating hereafter in my gradual exposition of India's internal trade and its external markets, a great scope of employment is presented here.

India is consuming Tea in large quantities. The consumption of Tea in India has increased from 68·6 million lbs. in 1933-34 to more than 95·3 million lbs. in 1937-38. It would thus be evident that the internal consumption of Indian tea is developing at rapid strides. The Indian Tea Cess Committee has been functioning from 1903 and collecting cess for developing markets in India and abroad. The effect of the activities of this Committee is being increasingly felt. From the earlier figures of 20 to 30 million pounds consumption of tea per annum in India, the figure has gradually touched 100 million pounds which represents roughly 3 pounds per capita.

At a recent survey it was found that in the industrial areas of Bombay and Ahmedabad the tea consumption has reached a figure of about 4 lbs. per capita per annum. This is highly indicative of the gradual development of the tea market in India and further stress in the matter of prohibition would lead to greater consumption of tea. By gradual improvement in the standard of living of the people Tea is likely to form an important item both in the daily menu and as an item of social entertainment.

Of the firms who operate in the internal distribution of tea the principal European Houses, as you may be aware, are Liptons and Brooke Bonds. Of a total trade of 100 million pounds it is estimated that these two European Houses cater for

8-10 million pounds, the residual quantity being handled by numerous Indian firms who operate in Calcutta, Bombay, Delhi and other important centres. Bombay not only supplies its local requirements but also serves as a clearing house for neighbouring districts. Similarly, next in importance come Madras and Delhi.

In the internal distribution of tea besides the large buying Houses which operate in Calcutta some of whom work only on commission basis and do not directly enter into the distribution trade, there are other numerous small firms who purchase on their own account and cater for the markets. During recent times besides the European Houses, there have appeared numerous up-country firms who are increasingly entering into this business of internal distribution. Small Bengali firms are also gradually springing up.

As in the case of some other commodities, which feature in the internal distribution, Tea is one which has become an important trading commodity during recent times and I can recommend to my young friends here to take special interest in the marketing and distribution side of Indian Tea. The consumers' preference to buy their own produce will go a long way in developing markets in India for its most popular beverage.

Gentlemen, you may be aware of the name of Indian Tea Market Expansion Board (formerly the Indian Tea Cess Committee). As I have stated

in an earlier part of my address the producers of India have been collecting a self-imposed tax for the last 35 years. At present the Board is collecting a sum in the neighbourhood of 46 lakhs of rupees out of which an amount of about 20 lakhs is being spent in India.

The operations of the Indian Tea Market Expansion Board cover several provinces in North and South India and besides working in the rural areas as it had been doing hithertofore, the Board will start to function in some of the principal cities from the next financial year.

For workers of the Indian Tea Market Board which is mostly of an out-door character, intelligent young men are recruited as propaganda officers. In the grade of Sub-Inspectors these young men start from Rs. 60 and gradually assume responsibilities as Inspectors @ Rs. 125 to Rs. 200 and Circle Inspectors @ Rs. 250, as Asst. Superintendents @ Rs. 300 and as Superintendents at Rs. 500 and over. Besides the above salary these officers draw out-station allowances at the rate of Rs. 2 to Rs. 10 per diem over and above usual travelling and/or conveyance allowances. The policy of employment of the Indian Tea Market Expansion Board has been to take in promising youngmen and graduates in the lower grades and gradually to promote them to upward ranks as they gain experience. Also for operations in the cities, it is in the contemplation

of the Tea Market Expansion Board to appoint lady workers to do propaganda work amongst the upper middle class people.

I understand that recently a proposal has been made to refer to the Appointments Board of the Calcutta University any vacancies in the Tea Market Board and to get suitable candidates through the agency of the Board for such situations. I feel that with increasing knowledge which the Appointments Board is able to gather from year to year it will serve as a very useful advisory body for recruitment into the services of the Board.

A recent feature which has a bearing on the internal development of markets in India has been the policy pursued by the Congress Governments in provinces in the matter of encouraging prohibition. We are now in possession of certain particulars as to the result of such work in Salem. The following extracts from the " Hindu," dated 27th December, 1938, will be of interest :

> Interesting facts are revealed as a result of a survey of the economic effects of Prohibition in the Salem district which was undertaken by the Department of Economics of the Madras University and conducted by Dr. P. J. Thomas, the University Professor of Economics. The survey covers the period from October, 1937 to September, 1938. One of the most important conclusions of the enquiry is stated as follows :

> " The most striking increase however, is in regard to tea and coffee, and all classes of workers share in this. The increase has been 316 per cent. and 360 per cent. respectively in the case of mill labourers and stone-workers. The Tea Market Expansion Board claims that 80 to 90 per cent. of the former drinkers have become regular visitors to their tea-shops in Salem.
>
> " The spending power formerly used for drink has been devoted largely for a more varied and adequate diet, better clothes and more amusements. There has been a significant change in the items of food used by the working classes, especially in Salem town. The expenditure on tea and coffee, vegetables, curds, ghee, oils, and meat has increased ; that on smoking and chewing has diminished in some cases..."

The above clearly illustrates how by gradually encouraging thrift and directing saving in useful channels the standard of living of the mass population is improved.

Gentlemen, you must have heard a lot about Economic Planning and Rationalisation of Industries. The Tea Industry has for a number of years been run on control. For all practical purposes the entire Production and Exports of the principal countries, *viz.*, India, Ceylon and the Netherlands East Indies, have been controlled. In India, besides the Export Regulation Scheme which is governed by Acts of the Indian Legislature (Indian Tea Control Act of 1933 and of 1938),

there is also a Voluntary Regulation of Output scheme which has been initiated and directed by the Trade. The Tea Industry is one of the large industries which has been thoroughly rationalised and it controls its offerings greatly to suit the requirements of World's consuming markets.

As I have stated in an earlier part of my speech, Tea is one of India's principal exportable commodities. Of India's total exports of Tea about a sixth to eighth goes directly to the consuming countries other than the United Kingdom. There are important India's External markets which require careful study in the process of development. Australia once used to take most of its Tea from India but on account of price and other factors Indian Tea cannot now compete in this market with the Dutch produce. The question of closer trade relationship with Germany, as you may know gentlemen, is receiving great consideration from the Indian mercantile community. The system of barter which the German Government has initiated requires intervention of the State for effective trade arrangements. Though India is considered to have an independent entity in the League of Nations, she does not enjoy the privilege of entering into Trade Treaties with foreign countries. The Government of India Act has kept away all such privileges which are reserve powers to be used by the Governor-General. The protracted negotiations for an Indo-British Trade

Agreement (which has since been signed) indicates our helplessness in the matter. Yet we should try to break new grounds to introduce our commodities into the large trading centres and to establish contacts that will bring commercial prosperity to this country.

Gentlemen, if you aspire to occupy the highest roll of honour in the commercial career you should be prepared to do the pioneering works in breaking new fields and establishing contacts with world's principal markets. Indian Tea offers scope for expansion in Iran, Egypt, U.S.A., Canada and the U.S.S.R. It might interest you to know that Russia once used to import large quantities of Indian tea and after the Revolution her total imports of Tea both by land routes and by sea has been only a fraction of the high figure of 180 million lbs. The new Republic has by now greatly rehabilitated itself and there are indications to show that she is able to devote more funds for increasing the standard of living of her population and purchase foods and drinks from other countries.

A feature which has got a great bearing on the point of a country's consumption is the Duty levied on such commodity. You may be aware, gentlemen, that Tea is subjected to an import duty into the United Kingdom. The different rates of duty levied in different countries and how these have an effect on the consumption of the country is an interesting study. How with the changes in the

rates of duty the consumption of Tea altered is provided by the United Kingdom which also illustrates how changes in consumption of British and foreign-grown produce has occurred in that country.

When I am endeavouring to place before you, gentlemen, a picture of the international aspect of Indian Tea I may also profitably tell you what the Industry is doing for developing markets abroad. For over 30 years by collecting funds by the imposition of a cess India's Tea growers are not only spending funds in India for developing markets but they are also operating in several markets of the world. During recent times such efforts have been intensified and huge amounts have been and are being spent by the Board for increasing Out-Markets. The success which these efforts will attain will be closely followed by the Industry for the follow-up and exploitation of these markets to their full extent and the benefit which will eventually accrue will result in India having a larger trade abroad.

I fully realise that the proposition which I am trying to place before you, gentlemen, is a difficult one and cannot be solved or realised within a short period. To fully equip oneself with these responsibilities requires long preparation and I can expect that at least some of you will make a firm resolve and prepare to take up such responsibilities.

To fully understand the implications of international trade you should obtain adequate apprenticeship training from important trading houses and I may one day be glad to know that some of you at least have made a mark in a commercial career of this character.

When you seriously desire to take up a commercial career, whether devoting yourself either to the internal trade or to the outside markets of the world you should first have great determination to do so. To be a true man of Commerce you should think of Commerce all the time and Commerce should be your first love. I for one cannot show you any easy path for attaining any wealth, fame or prosperity. Honesty and integrity of purpose are the foundations on which a true commercial castle should be built. If any of you, gentlemen, would care to have a true commercial career, you should be prepared to lead a hard life. Bengal which was once a prosperous trading country and had been operating both in land and coastal and foreign trade through her vessels and ships has lost that pride and it will be again through you, gentlemen, that she can once again aspire to reach a position of eminence in the commercial world. Unless a man is prepared to take risks he cannot expect to receive gains. I will only be delighted if as a result of these discussions some of you start from the bottom of the ladder and try to learn

from A to Z which represent in commerce all its secrets.

Gentlemen, a word about the first entrants into the field of Indian Tea Industry will give you, I believe, ample hope and encouragement. It was not an easy work for the pioneers to obtain either capital or obtain resources to open out plantations. By cutting down jungles and wild tracts which used to be the home of tigers, rhinos and elephants could these enterprisers take their first stand and gradually open up plantations. These earlier adventures of Indians who had no other desire than a hobby of their heart is responsible for the opening out of earlier plantations in various districts. At that time hardly any of them did think it in terms of a big industry and earlier records show their great devotion to duty and love of work. When I commend to you, gentlemen, to follow a career which is pregnant with immense possibilities but looks difficult in the start, I can well place before you the life and career of the pioneers amongst Indians in this field of Tea Industry.

STEEL INDUSTRY

By J. J. GHANDY
General Manager
Tata Iron and Steel Co., Ltd., Jamshedpur

I consider it a great privilege to be called upon to address you on "Steel Industry" in connection with the series of Career-Lectures organised by the University of Calcutta which stands for the advancement of learning and the promotion of culture.

It is a matter of gratification that at long last it is being realised that the object of education is not merely to fill the mind with theoretic knowledge and inaugurate an arm-chair millennium, but to develop the different aspects of one's personality and enable one to earn a decent living and fight the battle of life in general.

The present, as you are aware, is an age of unemployment, with most of the usual avenues of service overcrowded. Your University, and particularly the Appointments Board, with that energetic and far-sighted Dr. Syamaprosad Mookerjee as its Chairman, are, therefore, to be congratulated on their decision to inaugurate this series of lectures, which will lend a vocational colouring to your education and open up before you possibilities of employment in the fields of industry, commerce and trade.

Of the various industries which form the basis of the present-day civilisation, you will no doubt

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admit that none is so important as the "Steel Industry," with which I have been closely associated for the last 20 years, and which is the subject of this afternoon's lecture.

The Age of Iron and Steel

As origins are always obscure, it is hardly worth while, in the short time at my disposal, to dive deep into the mists of the past. Suffice it to say that there are evidences of the existence of the Iron Age in India about 1000 B.C. or even earlier, and there are references to steel making and to the art of damascening on soft steel in this country from 300 B.C. onwards. About the Middle Ages, we read of Persia importing steel from India; we read of the Saracens fighting with Damascus blades of Indian Steel. Centuries have passed since History began, but instead of losing ground to other elements, iron and steel have increased in importance. From them are fashioned a rich diversity of industrial tools and machinery and all manners of agricultural implements. It is iron and steel that enter into railways, bridges, ships, aeroplanes, automobiles, telegraph, telephone and other electrical appliances, and are of capital value for defence purposes. They furnish the framework of modern buildings and constitute the raw material for numerous articles of household use. In fact, iron and steel have penetrated so deep into the modern civilised life that the

present age has come to be labelled the Age of Iron and Steel.

I shall now trace the early efforts made in this country to produce steel on modern lines so as to give you an idea of the courage, the determination and the spirit of enterprise of the pioneers in this field—qualities which can best be developed at your time of life.

Early Efforts to Produce Steel in India

It was Mr. Josiah Marshall Heath who resigned from the Madras Civil Service in 1830 and set furnaces in operation at Porto Novo in South Arcot. In 1833, the Porto Novo Steel and Iron Co. took over the business and started new furnaces at Beypur on the Malabar Coast. But all efforts to produce steel proved unsuccessful.

In 1853, a new firm, called the East India Iron Company, announced its existence, with a capital of £400,000, erecting a Blast Furnace in the South Arcot District and another on the Cauvery River. But failure attended this enterprise also.

In 1875, Barakpur Iron Works came into being but were obliged to close their doors in 1879 and were taken over by the Government in 1881 and transferred in running condition to the Bengal Iron and Steel Company in 1889. In 1919, the Bengal Iron Company sprang into existence and piloted the industry to success. But the dawn of steel was

still to come; it awaited the arrival of that great industrial genius, the late Mr. J. N. Tata, who not only founded the Empress Mills at Nagpur and the Hydro-Electric works at Mercara near Bombay, but also the Tata Iron and Steel Works at Jamshedpur, which constittue today the largest single steel producing unit in the British Empire.

Steel Industry at Jamshedpur

It is not necessary in this lecture to refer to the resoluteness and energy with which the late Mr. J. N. Tata worked in collaboration with two American Engineers, the late Dr. Charles Page Perin and Mr. C. M. Weld, to bring into existence the iron and steel industry in India, or describe how he pursued his ideal in the face of every variety of failure with no confusion or loss of direction, and how the struggle was continued by his successors who had to wander through the jungles of the Central Provinces, bearing the heat and the burden of the day in vain search of iron deposits. It is enough to mention that it was due to the efforts of that famous Bengalee Geologist, the late Mr. P. N. Bose, that rich iron occurrences in the Mayurbhanj territory were discovered, and that it was only after protracted appeals to national sentiment that the necessary capital was secured. The next problem that awaited solution was the

selection of a suitable site for the steel works. The Tata Iron & Steel Co., which had announced its existence in 1907, with Messrs. Julian Kennedy, Sahlin & Co., as its construction engineers, selected Sakchi for this purpose on account of its nearness to iron ore, coal and limestone supplies, its command of water and rail road facilities, its comparative closeness to the port of Calcutta, and on account of Mica-schist that underlay the site, furnishing a suitable foundation for the erection of a steel plant.

The actual construction at Jamshedpur commenced in 1908, the first pig iron being produced towards the end of 1911 and the first steel ingot being rolled off the Blooming Mill on the 16th February, 1912.

Stages of Steel Production

I shall now describe very briefly, in non-technical language, the various stages of steel production at Jamshedpur, so that those of you who wish to take up a career in the steel industry may form a rough idea of the nature of work you may be called upon to do.

Coal obtained from the various mines is first pulverised in the crushers and then taken to Coke Ovens, where it is heated in air-tight chambers and converted into coke, the gas that escapes

from the coal during the process of distillation being utilised for heating and drying purposes.

Almost all the coke obtained from the Coke Ovens, mixed with requisite charges of iron ore and limestone, is then hoisted in Skip Cars to the top of the Blast Furnace which is sealed by two movable " bells," the raw materials occupying the space between the open top bell and the closed bottom bell. The top bell then closes and the bottom bell opens, so that the charge descends in the furance and meets ascending currents of heated gas which is merely cold air superheated in stoves and blown in through openings in the bottom of the Blast Furnace. As a result of contact with coke, this superheated air is transformed into gas, and the raw materials, whilst descending, are reduced and melted, limestone acting as flux and absorbing the various impurities from the ore and forming a slag which is tapped from the furnace through a hole known as the slag hole, the molten metal which is heavier than the slag being tapped later.

The Pig Iron obtained from the Blast Furnaces is utilised chiefly for steel making, although a small portion of it is also cast into sand beds or into moulds at the pig casting machine and sold outside for foundry use.

The two processes used for the conversion of Pig Iron into Steel are the Basic Open Hearth and the Duplex Process, of which the former uses both

Pig Iron and Scrap and the latter Pig Iron exclusively, the object of both processes being the purification of Pig Iron.

In order further to distinguish the two processes, it may be mentioned that whereas, in the Open Hearth, the purificatton of pig iron is effected entirely in the Open Hearth, in the Duplex process the molten metal is first " blown " in an acid Bessemer Converter for removal of impurities like silicon, manganese and carbon, before it is subjected to the purifying process of the Open Hearth, where phosphorus is eliminated to a great extent and the requisite alloys added in suitable proportions so as to yield steels of correct specifications.

The molten steel obtained from the Open Hearth or the Duplex Plant is then transferred into moulds and allowed to solidify into what is known as ingots, and then taken out of these moulds and removed in trollies to heating furnaces, to be heated to the required temperature. The Blooming Mill reduces these ingots to blooms and slabs, slabs being rolled into plates in the Plate Mill and blooms into rails and structurals in the Rail and Structural Mill, or into sheet bars, billets, sleeper bars and tin bars in the Sheet Bar and Billet Mill. The Sheet Mills convert these sheet bars into sheets; the Merchant Mill turns the billets into merchant bars and light structurals; the Sleeper Press presses the sleeper bars into

sleepers; and the Tinplate Company, which is situated only 2 or 3 miles away from the Jamshedpur Steel Works, transforms the tin bars obtained from the Steel Company, into tinplates.

The Organisation of the Tata Iron and Steel Company

I shall now give you a rough idea of the organisation of the Tata Iron and Steel Company, Limited, which has been practically the sole representative of the iron and steel industry in India so far, so that you may realise the extent of scope for employment that the Steel Industry offers.

The ultimate responsibility for the management of the Company is vested in Messrs. Tata Sons Limited, who are Managing Agents, deriving their authority from the powers delegated to them by the Board of Directors of the Steel Company. The Managing Agents in turn have delegated some of their powers to the General Manager of the Company who controls the organisation in Jamshedpur and co-ordinates the work of the numerous Departments working under him. The following is the list of the Divisional and Departmental Heads who are under the control of the General Manager :—

1. The General Superintendent (Works),
2. The Controller of Accounts,
3. The Chief Engineer,

4. The General Superintendent, Ore Mines and Quarries and Prospecting,
5. The Coal Superintendent,
6. The Chief Town Administrator,
7. The Chief Medical Officer,
8. The Labour Officer,
9. The Superintendent, Labour Bareau,
10. The Superintendent of Training, and
11. The Purchasing Officer.

The General Superintendent co-ordinates the work of the different Departments inside the Plant, and is assisted by 3 Assistant General Superintendents whose work is divided on a functional basis into the following categories : (1) Steel Making in general, (2) Service and Maintenance, and (3) Rolling Mills Departments.

Each Department in the Works has a Superintendent, an Assistant Superintendent and a requisite number of Foremen and Supervisory Staff, who are responsible for supervision of the work of the Labour force in their Departments.

The Controller of Accounts is responsible for the maintenance of a complete and comprehensive record of the financial aspects of the operations of the Steel Company as well as for the audit of its income and expenditure, whilst the Chief Engineer is responsible for the design and execution of all Capital and Construction works undertaken by the Company in connection with the Steel Works at Jamshedpur.

The General Superintendent, Ore Mines and Quarries and Prospecting, as the name signifies, is in charge of Steel Company's Ore Mines and Quarries, whilst the Coal Superintendent is in charge of the Company's Collieries.

The Chief Town Administrator, who is also the Chairman of the Jamshedpur Notified Area Committee, is responsible for the administration of the Town of Jamshedpur, his duties comprising :—

1. Town Engineering and Water Works,
2. Health,
3. Housing,
4. Land,
5. Markets,
6. Farm,
7. Town Laboratory, and
8. Veterinary Hospital.

Under the Chief Town Administrator is the Chief Town Engineer, who is in charge of all Engineering works, such as those connected with buildings, roads and water supply in the Town.

The Chief Medical Officer is in charge of the Main Hospital and the Dispensaries at Jamshedpur.

The Labour Officer, who is directly under the General Manager, acts as a Liaison Officer between the employees and the Officers of the Company and is the guardian of the interests of the workmen in matters relating to conditions of employment, housing and the many other amenities that the Steel Company provides.

Under him is the Welfare Officer, who looks after sports, organises tournaments, open-air talkies and other activities calculated to promote the health and happiness of workers and their families, not only in Jamshedpur proper, but also in the outlying bustees.

The Superintendent of Training, who is in charge of the Jamshedpur Technical Institute, to which fuller reference will be made later, is responsible for the technical education of the apprentices, who are subsequently given employment by the Steel Company, a requisite Teaching Staff being given to the Superintendent to assist him in this work.

Then there is the Education Committee in charge of the maintenance and management of the schools at Jamshedpur, both the Education Officer and the Head Master of the High School being under the Commitee.

The Purchasing Officer handles all purchases on behalf of the Company.

Then there is the Sales Manager, who is directly under the Managing Agents, and co-ordinates the work of the Company's Sales Offices all over India.

Between the Superintendents or Heads of the different Departments and the workmen, there is a large Supervisory Staff consisting of Foremen, Assistant Foremen and others, who not only supervise the work of labour, but also con-

cern themselves with working conditions of labour.

Labour at Jamshedpur

The labour employed by the Company is either of a permanent or of a temporary character, the strength of the former being determined by the permanent, basic requirements of the Steel Company, and that of the latter varying in accordance with demand for the Company's products in the Indian Markets as well as with the Capital Construction programme that the Steel Company may have on hand.

The following figures will give you a concrete idea of the number of workers of different categories employed by the Steel Company at Jamshedpur only, as on 1st April, 1938:—

			No. of Men
Superior Supervisory Staff		...	115
Other Supervisory Staff		...	679
Clerks		...	1,425
Labour	Men	...	23,797
	Women	...	2,478
	Children (Office Boys only)		180
	Total	...	28,674

Adding the number of workers who are engaged at the different mines and collieries, at the Agents' and Sales Office, Calcutta, at the

Stockyards and at the Bombay Head Office, the total number employed works out to somewhere between 40 and 50 thousand, exclusive of Contract labour employed by Contractors to carry out works on behalf of the Steel Company.

You will thus realise that the scope for employment in the steel industry is greater than perhaps in any other industry in India, though it is possible that when some of you or your friends actually applied for a post at the Jamshedpur Iron and Steel Works, you were told that there was no vacancy. Such refusals are only natural in the case of any well established industry, for no industry can really be well established unless most of the posts, no matter in what category, are suitably filled. But it should be remembered that vacancies must arise when the present hands get old, and, therefore, it does not follow that if your application for work has been refused once, it will always be refused.

Amenities at Jamshedpur

We, at Jamshedpur, realised from the beginning that if the Steel Industry was to have a permanent and a contented labour force, it must pay them a decent wage and provide them with amenities which add to health and happiness in general. As a consequence, the Steel Company is not only one of the best payers in India, but has also made itself responsible for such amenities as roads, drainage,

sanitation, water supply, markets, schools, hospitals and housing, the provision of which is not ordinarily the business of an industrial concern, but devolves upon municipalities or improvement trusts, the employees themselves and Government. Free medical treatment is provided both to employees and to non-employees at the Company's Hospital and at its outdoor dispensaries.

Inside the Works there is a General Safety Committee, which is affiliated to the National Safety First Association and supervises the operation of the Safety Department at Jamshedpur.

Special stress has also been laid on the provision of adequate educational facilities for the children of employees as well as of other residents of Jamshedpur, no fees being charged in the lower primary classes, and every effort is being made to foster the ideal of universal literacy in the town.

There are several other amenities provided by the Steel Company, such as free ice and soda for all its employees, Works Hotels inside the plant, a women's Rest Houses, free Cinemas in the Bustees, Play-grounds for children, Co-operative Credit Societies for the employees, a liberal Provident Fund and a Retiring Gratuity scheme, but I shall not go into details in this place as the subject really falls outside the scope of this afternoon's lecture. I must however, make a reference in passing to the new Profit-Sharing scheme which has recently been launched by the Steel Company and is

the first of its kind in India. It provides that when dividends payable to shareholders are in excess of a particular figure, the Company's employees will receive à certain proportion as profit-sharing bonus, the amount of which will vary with the figure available for distribution as dividend. Under this scheme, the equivalent of 3 months' salary was paid to the employees in the year 1937-38.

Thus the living and working conditions at Jamshedpur have been made as attractive as possible, and I am sure those of you who succeed in finding a career in the steel industry at Jamshedpur will find the surroundings there as congenial and conducive to happiness as in the garden cities of the West.

Qualifications Required in the Steel Industry

I must, however, stress the fact that it is only to men of requisite qualifications that the Steel Industry offers scope for employment. To others, no matter how heavily laden with academic hononrs, it only offers a closed door. I may also mention that there was a time when in most countries there was a very strong prejudice against University men, who were normally considered to be leisurely in their ways and habits, shirking or

holding in scorn manual labour. Thanks to the conscientiousness, integrity and ability of some of University men who chanced to secure employment in this industry, this prejudice is now entirely dead and it is the considered opinion of leading business-men and industrialists that University Graduates with requisite qualifications can make better workers and officers than those who have not had the privilege of receiving education at a University. But you must understand that if you wish for a successful career in the Steel Industry, you must cast aside all ideas of snobbery or superiority; you must be prepared to roll up your sleeves and get down to work like any of the lowest paid workmen ; you must associate with them in a friendly spirit and give them as much respect as you would like to command yourself. For it is only then that you can develop your business ability, if any, and work your way up, rising to posts of authority in the fields of industry.

Facilities for Research and Metallurgical Training in India and Other Countries

It is a matter of regret, however, that facilities for industrial research and metallurgical training, so essential to success in the Steel Industry, are utterly inadequate in this country. Contrast the major industrial countries of the West with India, and you will notice a glaring difference in this respect.

For reasons of time I shall single out only America for mention. There a special place is given by the Universities in their curriculum to subjects like Engineering and Metallurgy, and adequate facilities for research are provided; in addition, you have professional societies which enroll students as members, who later become Junior Members and then Full Members, and are admitted right from the beginning to all the transactions of the societies; you have also what is known as the Engineers Council for Professional Development, members of which visit the different Universities and scrutinise from time to time their courses of study, laboratory equipment and financial standing, and also prescribe courses of study to the students even after they have left the University. There are other media as well, through which the old technical men of experience are brought into touch with young students, and help the latter to improve their technical and metallurgical knowledge, both theoretic and practical.

Further, in order to assist qualified men in finding suitable posts in the Steel Industry, you have Personnel Departments attached to various Steel Companies, to select candidates, after interview, steer them into different Departments, and eventually give them suitable posts in the Company. These Personnel Departments are also in constant touch with the various Colleges and Universities, and keep on the look-out for men of promise and ability.

It is not necessary to go into details but I would like to emphasise that in Steel Industry in America, whether you are going to work in a Sales Office or in the Accounts or the Purchasing Department, which appear on the surface to be non-technical, you have to attend technical lectures at night and do hard manual work in the Steel Plant for a certain length of time, and gain a good all-round idea of the Plant in all its ramifications before you are started in the office.

Forgive me I if recount my personal experience as a student in America. During a summer vacation, my professor at the Carnegie Institute of Technology gave me a letter of introduction to the Manager of the Allegheny Steel Works, Bridgewill, near Pittsburg. I went to see him with this letter and acquainted him with my academic qualifications. The Manager, who was chewing gum, spat on the floor and said: "These degrees are alright, but what the hell can you do ?" Full of ambition, "Anything" I replied and was given the work of lifting timber in the Sheet Mills. In the beginning, I found that I could not lift more than one piece at a time, whereas my fellow-workers could manage 2 or even 3. After some practice, however, I was able to lift 2 pieces, and the Manager, who was keeping a watchful eye on me, expressed his appreciation by promoting me to the post of a Helper, in the Inspection section of the Sheet Mills,

where I had to lift and pile sheets. Later on, I was made an Inspector in supersession of the claims of several others, chiefly because I was a steady worker and had not been absent from work even for a day.

It is worthy of mention that in that great democratic country, the United States of America, it is not the accident of one's birth or the class to which one belongs that counts ; the only thing that counts is personality and merit. There have been instances of office-boys rising to be Presidents of Steel Companies, and of some of the University men being left on the wayside. Hard work, integrity and conscientiousness are the strongest assets that a person can possess in any sphere of life ; and if to these is added the asset of a proper metallurgical and engineertng training, there can be nothing to stop one from rising to the highest rung of the ladder.

Facilities for Research and Training at Jamshedpur

The Tata Iron & Steel Co., Ltd., realised from the beginning that in the absence of adequate facilities for industrial research and for technical and metallurgical training in the country, it would not be possible for the Indian Steel Industry to keep abreast of recent advances in this field or hold its own against foreign competitors, and it was to

meet this deficiency that the Steel Company set up the New Control and Research Laboratories at Jamshedpur, which were opened by the late Sir N. B. Saklatvala, Chairman of the Board of Directors of the Tata Iron & Steel Company, Limited, in October, 1937, and will have cost about Rs. 20 lakhs to the Steel Company, when fully equipped.

Further, the Company maintains a library where a much larger number of technical or research publications are regularly received than by other libraries attached to other Steel Works elsewhere in the world. But situated so far away from America and Europe, which are the homes of research, the Company also considered it advisable to inaugurate an annual series of lectures last year in honour of the memory of the late Dr. Charles Page Perin, one of its first construction engineers, and invite foreign experts to give us the benefit of their erudition and practical experience and bring right to our door the fruits of laborious research that is being carried on by scientists in the West.

Apprenticeship Scheme of the Tata Iron and Steel Co.

Research, however, without a proper basic training in metallurgy and engineering, cannot be of much avail. In fact, the latter is the foundation,

and the former the superstructure. It was to provide this foundation that the Steel Company established in 1921 a Technical Institute for the training of Apprentices. As the subject is important, I shall deal with it at some length.

Under the present scheme of training, there are three classes of Apprentices—'A,' 'B' and 'C,' 'A' and 'B' Classes being trained for superior posts such as those of Superintendents, Assistant Superintendents and Foremen, whilst 'C' Class Apprentices are trained to become skilled Workmen. There is, however, no bar whatever to an Apprentice of any class rising to posts of highest authority, provided he possesses the necessary ability.

The recruitment of Apprentices under the 'A' and 'B' Classes is made by selection only, students from all parts of India being eligible for admission, and the average number of entrants being 12 a year.

The minimum qualifications required fo. admission to Classes A2, A1 and B :—

Classes of Apprentices		*Qualifications*
'A2' Class	...	An Honours or First Class Degree or Diploma in Mechanical or Electrical Engineering or Metallurgy of a

recognised Indian or Foreign University, Technical Institute or College, accompanied by 7 months' continuous practical experience after graduation in an Iron and Steel Works abroad, is necessary.

'A1' Class ... An Honours or First Class Degree or Diploma in Mechanical or Electrical Engineering or Metallurgy of a recognised Indian or Foreign University, Technical Institute or College, preferably accompanied by Works experience abroad, is required.

'B' Class ... A Degree or Diploma in Mechanical or Electrical Engineering or Metallurgy of a recognised Indian or Foreign University, Technical Institute or College, is essential.

The age limit is 24 years for Graduates of Indian Universities and 27 for those of Foreign Universities, selected candidates being required to pass a medical examination.

On admission, the Apprentices are given a combined theoretical and practical training, extending over a period of 2 years, the course being the same for both 'B' and 'A' Class Apprentices, although, owing to differences in the initial qualifications of entrants, they are divided into two groups for the purpose of training, those with initial Engineering qualifications being given a Metallurgical training, and those with initial Metallurgical qualifications an Engineering training, so that the final product is a Metallurgical Engineer.

During their first year, Apprentices are required to attend the Institute for theoretical training and the Works for practical training on alternate weeks. The theoretical work includes not only lectures in Metallurgy or Engineering according to the group of the Apprentices, but also a great deal of practical work in the Laboratories on Pyrometry, Metallography, Testing of Steel, Fuels and Chemical Analysis of Iron and Steel, or Mechanical and Electrical Engineering, as the case may be.

In the second year, Apprentices spend their day time in the Works, but attend evening lectures at the Institute, thrice a week, on Metallurgical Processes, Works Maintenance, Cost Accounting and

Industrial Economy. These lectures deal with Tatas' practice and are delivered by Officers of the Company on subjects on which they may happen to be experts.

The programme of training in the Works is so arranged as to give the Apprentices a general training in the various Departments of the Works, the last 6 months of Apprenticeship being spent on specialised training in one particular Department.

The recruitment of Apprentices for 'C' Class is also by selection, though in this case preference is given to youths whose parents or guardians are employees of the Steel Company, candidates being required to pass an entrance examination, a medical examination and an intelligence test. The usual number of admissions is 75 each year, the minimum qualification for admission being Middle English Pass within the ages of 15 and 18 years.

These Apprentices are also given a combined theoretical and practical training, but their period of Apprenticeship extends over 5 years. During the first 4 years they attend the Apprentice School for 2 days a week for theoretical training and the Steel Works for the remaining 4 days for practical training, the school course comprising General Education, Elementary Science and Technology as required in the Works.

The programme of training in the Works is so arranged as to give the Apprentices, first a

general training in the various Shops and the Electrical Departments of the Company and, then, in the final year, specialised training in one particular Department, 7 members of the staff being appointed by the Steel Company to supervise the practical training of Apprentices inside the Works.

During the period of their apprenticeship, Apprentices are paid the following stipends :—

'A' and 'B' Class Apprentices :

'A_2' Class	...	Rs.	200	per	month.
'A_1' Class	...	,,	75	,,	,,
'B' Class	...	,,	50	,,	,,

'C' Class Apprentices :

1st Year	...	Rs. 0	8	0	per	day.
2nd ,,	...	0	10	0	,,	,,
3rd ,,	...	0	12	0	,,	,,
4th ,,	...	0	14	0	,,	,,
5th ,,	...	1	0	0	,,	,,

Then there is the Jamshedpur Technical Night School, which is patronised by the Workmen of the Company, the Associated Companies and Contractors, is run on a fee-paying basis, and is supported by the Company and the Bihar Government. The courses taught at the School are Trade Courses of one year's duration and comprise such subjects as Foundry Practice, Armature Winding, Electrical Wireman Course,

Drawing, Workshop Practice, General Science, etc., the medium of teaching being English and Hindustani mixed, and lectures being delivered once a week.

I may add that the Technical Institute also accepts every year a number of college students from the different Universities who wish to undergo a course of vacation training in the Works, in order to help them in their Degree or Diploma examinations.

The Steel Company has also a scheme in operation under which students who pass from the Institute and show signs of ability and promise in the Works, are sent abroad for a year's training, either at the Company's expense or with some kind of financial assistance from the Company.

After completing their training, the Apprentices are employed by the Company on a 5-year Agreement, the status and initial salary being determined by individual merit and by the type of post available. The number of Apprentices who received employment with the Steel Company was 296 up to the last year.

Thus, our Technical Institute serves a very useful purpose in the industrial life of the country. Situated at Jamshedpur, it not only imparts theoretical metallurgical training to the students but also surrounds them in an atmosphere of iron and steel, rendering them suitable for the toughest type of work in the steel plant.

Allied Industries

Reference may also be made in this place to training and scope for employment in allied industries such as Foundry and Engineering Works. The type of training necessary in these cases is more or less the same as that required for the Steel Industry, except that more emphasis has to be laid in these cases on theoretic training in Mechanical Engineering or Foundry Practice and on practical experience in Engineering Works or in Foundries, depending on whether you are seeking employment in the Engineering or in the Foundry trades. The main point is that your training should be as comprehensive as possible including Book-Keeping and Cost Accountancy in addition to the subject in which you propose to specialise. It is difficult, however, to prescribe a general course of a specific duration for all, as natural aptitudes, preliminary education and financial resources may vary considerably from student to student. But whether you wish to be Shop Managers or Superintendents, Supervisors, Craftsmen or Salesmen, in the Steel Industry or in the allied trades, you will find that technical training, theoretic and practical, combined with a strong business instinct and the will to work, are the main pre-requisites of success.

I shall now digress a little and make a brief reference to the future of the Steel Industry, a

subject which should be of interest to students of Economics.

Future of Steel

The Steel Industry has had a most chequered career since the last World War. Passing first through the post-War depression and then through a brief season of prosperity, the Industry found itself at the edge of the precipice during the world crisis that followed on the Wall Street crash of 1929. Thanks to Protection and to measures of rationalisation, economy and efficiency which Tatas have been introducing from time to time, the Industry was not only able to keep its head above water during those dark days, but has also been able to expand its output from year to year, as will be seen from the following figures :

Year	*Tons of Saleable Steel*
1933-34	531,000
1934-35	604,000
1935-36	646,000
1936-37	667,000
1937-38	660,000

The profits of the Company have also been on the increase, the nett figure for 1937-38 being Rs. 2,83,00,000 (Two crores and 83 lakhs) approximately, which constitutes a record.

I have no doubt that in view of the present strong position of the Industry and the fact that this position can be utilised to strengthen its resources still further, the Industry will be able to dispense with Protection after the expiry of the present period in 1941, unless unforeseen circumstances upset all calculations.

I may mention that in a short time the Indian Iron and Steel Company near Asansol will also commence production of steel, and although in the beginning they may have to engage a number of foreign experts as we did, it may reasonably be hoped that they will gradually Indianise their staff, offering openings to the youngmen of the country.

Conclusion

This brings me to the conclusion of my lecture. I have traced in brief the beginnings of the Steel Industry in India and referred to the organisation of the Tata Iron & Steel Co., Ltd., the amenities it provides to its workmen, and the Apprenticeship scheme it has in existence at Jamshedpur, the object of which is to ensure a continuous supply of trained staff of different categories. I regret it has not been possible in the limited time at my disposal to touch more than the fringe of the subject. But I am sure it will be clear from what I have said that the

Steel Industry is still an expanding industry with a bright future before it, and the scope for employment it offers is greater than that in any other industry in the country—a scope that will continue to get wider and wider with the years.

COTTON TEXTILE INDUSTRY IN BENGAL

By A. B. Guha

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I

Though the first Cotton Mill in India, *viz.*, the Bowreah Cotton Mill, was erected near Calcutta in 1830, Bengal, to-day, stands almost last amongst the provinces in the production of cotton goods. At the beginning of the industry, Bengal did not lag far behind Bombay, for, the first mill there, *viz.*, the Bombay Spinning and Weaving Mill, commenced work in 1856, and in 1873 there were 28 mills in Bombay as against 15 in Bengal. Later on, except during the Swadeshi Movement days, Bengal slipped back; so that, in 1931, there were 73 mills working in Bombay island as against 13 in Bengal. Since 1932, however, several new cotton mills have been established, some of which are equipped with the most up-to-date machinery and are now approaching or actually have begun the production stage. To-day, there are 380 mills in India, of which Bengal possesses 28 with 4·6 per cent. of total Indian looms and 4·1 per cent. of

total spindles. In 1937-38, Bengal produced 16·6 crore yards of cotton piece-goods as against 408·4 crore yards produced in British India. The *per capita* consumption of cotton piece-goods in India can roughly be taken to be 16 yards So, what Bengal produces is hardly sufficient to clothe even a fifth of her population. In addition, Bengal consumes a very large quantity of yarns imported from other provinces and foreign countries.

It must be abundantly clear from the above that a vast internal market exists for cotton mills in Bengal. Though this consideration has an important bearing, by itself it is certainly not a sufficient justification for the promotion of cotton mills in Bengal. For, whatever immediate self-interest might dictate, we believe in inter-provincial trade based upon inequality of natural resources and other conditions. Unless there are compelling reasons, economic forces should be allowed to have free play and no attempt should be made to disturb the natural distribution of industries by provinces. It may be urged, and not without great force, that since the cotton mill industry is highly concentrated in Bombay and Ahmedabad, no attempt should be made to develop it elsewhere, for, that would entail a loss of the internal and external economics of localization. As for Bombay island, this contention has no longer much force. At one time Bombay was believed to be the

natural seat of the cotton mill industry on account of its climate, proximity to markets and the most important cotton producing areas and other reasons. Though cotton is grown, more or less, in many provinces, nearly seventy-five per cent. of the total crop is raised in Bombay, Central Provinces and Berar and Hyderabad State. But, in spite of these advantages, the Bombay industry has receded, since 1908, from about fifty per cent. of the total Indian production to forty per cent., due to the development of other centres like Ahmedabad, Sholapur, Madras, Delhi and Cawnpore. It is not our purpose here to discuss the relative advantages of these different centres, but we want to emphasise that the recent tendency has been for a wider distribution of cotton mills, in spite of the geographical and other advantages of Bombay and then of Ahmedabad. A similar trend has been observed in Europe and the U. S. of America as in India. In the life history of an industry, centralisation has undoubted advantages, but, as time goes on, it becomes a handicap. Wherever an industry is massed together, rents, taxes and cost of living go up; trade unions form; the machinery becomes old and obsolete, and inevitably new centres of production spring up; excessive concentration of population in limited areas also gives rise to difficult problems of sanitation and housing, and produces a lack of equilibrium between agriculture and industry in the country as a whole.

II

Other Conditions Favouring Establishment of Mills

That certain conditions in Bengal are encouraging for the establishment of cotton mills is amply demonstrated by the success of mills already working and the number of mills in process of erection. Even in the present acute depression, the working results of Bengal mills are generally found to be better than in Bombay. Of course, success has not been uniform, but in most of these cases the poor results will be found to be due to faulty organisation in the widest sense of the term.

In addition to the presence of a huge market at the door, Bengal mills would enjoy other advantages as well.

Being a deltaic country intersected by big rivers, the temperature is lower than in centres like Ahmedabad, Cawnpore and Delhi, and the atmosphere is more humid. Of course, to a great extent, modern inventions can manufacture suitable atmospheric conditions within the factory, but the advantages of a gift of nature cannot be gainsaid.

In the supply of motive power, Bengal has natural superiority over all other centres excepting those where cheap Hydro-Electricity is available. The freight charges from Jharia and Raniganj to

the other centres are very much higher than the corresponding charges to Calcutta and Dacca.

As for labour, the average Bengalee does not like to work in a factory, and in consequence the mills round about Calcutta work with Madrasi or Behari, Uriya or C. P. labourers. The Dhakeswari Cotton Mills, however, is working exclusively with Bengalee labourers recruited from the neighbouring villages. This demonstrates, not that the Bengalee dislikes factory work so much, but that he refuses to submit to the housing, sanitary and social conditions of labour in the Calcutta area. Moreover, he cannot stand aloof from factory employment much longer. In respect of population, Bengal is the largest province in India, in area she occupies the ninth place amongst the provinces of India. The average density of population in Bengal is greater than that of the other provinces and foreign countries as well. The average holding for an agricultural worker is a little above 2½ acres of land. The pressure of population on the soil is so great in some of the Eastern Bengal districts that it is being relieved somewhat by emigration to Assam and Burma. If industries are established in suitable places, there is no reason why the surplus population should not move to them. A factor very much in favour of Bengalee labourer is that he is more intelligent, though physically a bit poorer, than outside labourers. Workers in cotton mills,

however, do not require a very strong physique, because, the operations are such as to require a sensitiveness of touch and flexibility of fingers more than physical exertion. Moreover, Bengal mills in suitable rural areas will have a definite advantage in that they will not have to pay wages at the higher scales prevailing in the city. Though city labourers usually get higher money wages, their real income is not necessarily higher.

In point of labour efficiency, a new centre of cotton mills will be at a disadvantage during the initial period of apprenticeship. But in these days of specialised machinery, it does not take a long time to acquire the necessary skill. In the experience of the Dhakeswari Cotton Mills, in the course of eight years, spinning efficiency has reached almost India's maximum, and it is confidently expected that within a year or two the maximum will be reached in the weaving section as well, so that the disadvantage on this account is not of a permanent or inherent nature, but such that can be removed by training and experience.

III

Feasibility of Cotton Cultivation in Bengal

While discussing the suitability of Bengal for cotton mills, one might say that since Bengal does not grow raw cotton, there is no

case for the establishment of cotton mills in Bengal, for, the development of the other seats of the industry in India has been largely determined by this consideration. In the purchase of Broach, Surat, Punjab and American cotton, the additional cost on account of freight is so great that very little of these staples are used in Bengal. In the purchase of cotton from the Madras side, the disadvantage is not greater than that of Ahmedabad or Cawnpore As for East African cotton, every centre other than Bombay is at a considerable disadvantage. In Bengal, the demand is for finer goods, hence a very large quantity of this cotton is used. The disadvantage of Bengal in the supply of East African cotton may be reduced if consumption of this type of cotton increases, thereby making it possible for the Steamer Companies to maintain a regular service of direct line steamers from Mombasa to Calcutta. But the real and permanent solution of the problem lies in the cultivation of cotton in Bengal, the feasibility of which has been amply demonstrated. It is not generally realised that, historically speaking, Bengal has long been a storehouse of cotton products manufactured from raw cotton grown within the province. In the days of the bullock-cart, certainly muslins could not be manufactured from cotton imported from long distances. Writing in 1840, Taylor says in his "Topography of Dacca": "The material of which the fine Dacca muslins are made is entirely

the produce of the district." "The cotton of the present day," Taylor regrets, "is inferior to what it formerly was." Notwithstanding the deterioration imputed, it still ranked as an article of finer quality than the produce of other parts of Bengal. Taylor further says: "Of late years, small quantities of it have occasionally been exported to the Calcutta bazars, where it always sells at a higher price than cotton imported from other parts of the country."

In his "Statistical Account of Dacca District," Hunter endorses Taylor's statement. Says Hunter: "Cotton was formerly grown extensively in the District, but its cultivation is now much reduced, and since the decline of the fine Dacca muslins, it has almost entirely ceased."

In support of my suggestion for the introduction of cotton cultivation in Bengal, I have not relied upon past antecedents alone. Recent experimental cultivation at the Dhakeswari Cotton Mills has conclusively proved that the long staple cotton of Bengal, when cultivated under proper conditions, compares most favourably with the very best staple imported from America, both in quality and in quantity. It is a matter for gratification that, after repeated attempts, I succeeded in interesting the Agricultural Department of the Government of Bengal in this matter, and that, ultimately, a start has been made in expanding its cultivation. A five-year scheme has been inaugurated

by the Government, in collaboration with the Bengal Mill-owners' Association, for the cultivation of long staple cotton in certain highland areas in Bengal. But the very small sum of money (Rs. 20,000 spread over five years) allotted for the purpose inclines one to suspect that the matter has not been given the serious attention it deserves. In this connection it is regrettable to record that the Central Cotton Committee had assumed an attitude of indifference, if not of hostility, in this matter. Large amounts of money are being spent in the deserts of Rajputana and other places for the cultivation of low grade cotton for which the demand is not expanding, while no interest is being taken in long staple cotton in Bengal though Bengal contributes a large amount by way of cess on her consumption of cotton.

IV

Safeguards in Mill Planning in Bengal

In promoting mills in Bengal, to avoid possible disappointment and reproaches, attention should be paid to the following safeguards :—

(1) A mill should be of the proper economic size. In our view, the minimum size of a mill ought to be 500 looms and 17,500 spindles. Too small units are at a disadvantage in the purchase of raw materials, stores and sale of finished goods.

Small mills are bound to be inefficient, as they cannot maintain a properly trained and highly paid technical staff. A big mill can pay any price for brains, for it gets back many times more than it pays. It is well to remember that competition, both internal and external, is very keen in the cotton industry.

(2) A merely spinning or weaving mill will not be a paying proposition. At one time mills in Bombay specialised in spinning only, but now almost all of them have added weaving departments. The cotton mills in Bengal under the Managing Agency of Messrs. Kettlewell, Bullen & Co. have been forced to do the same thing. Yarn constitutes a raw material for hand-loom weavers, and hence it cannot be subjected to anything more than a revenue duty. So competition in the yarn market is very severe, and it is difficult to make any profit.

On the other hand, a purely weaving mill is under the handicap of buying its yarns and thus pays a profit to others, which increases the cost of production of the finished goods. We want to specially emphasise this factor, as promoters in Bengal often commit this mistake, in the expectation of adding to other departments later on out of prospective profits.

In planning a mill, special attention should be given to the character of the market. A mill will be at an advantage if it produces goods which are in wide demand. Market for goods which have

a restricted or special demand will not be so steady.

(3) Great care should be taken in selecting and appointing the right kind of men in charge of the departments. There is a dearth of suitable technical men in India. What is wanted is that these men should have both theoretical and practical knowledge and long-standing experience, both Indian and foreign, of a high order. Men of this type are always costly, but a mill that is enlightened enough to make such a selection is sure to reap the benefit in the form of a lower cost of production per unit. Most of the present departmental heads have risen from the bottom. They may be very good in the particular job, but they cannot see very much beyond their own orbit. Such men are apt to become extremely conservative, suspicious of all changes and lacking in all forms of initiative. The Indian youths who go abroad do not lack in the preliminary education, but they commit the mistake of going in for degrees, while they ought really to pick up practical experience in the factory along with theoretical training in Universities. As it is impossible to get into a cotton mill, either in England or elsewhere, to obtain practical experience, young men who want to go abroad for education in the technical line, should have sufficient practical training which India can provide. Otherwise, on returning home they expect some fat salary and the chance of bossing

over, but they are not generally entrusted with such responsible posts, and in the few cases where some had been fortunate enough to obtain such posts, they proved failures.

(4) In organizing a mill, or in drawing plans and specifications, and in daily management, of course, technical experts must be given their due importance, but the complete scheme should get the final approval of persons who have a fair technical knowledge coupled with a thorough study of the commercial side.

(5) In the determination of the location of a factory, the initial cost of land is no guiding factor. The general considerations that are to guide us in this matter are as follows: If electricity is used, then the factory is to be near the generating plant. In Bengal, in the absence of Hydro-Electric works, there is no scope for the use of electricity as a motive power, except in the Calcutta area served by the Calcutta Electric Supply Co., Ld. In the case of steam turbines, nearness to a plentiful supply of good soft water is necessary. In the matter of coal, Bengal has a natural advantage over other centres. Even then the factory should be so located as to have some advantage over the nearest competing mills elsewhere.

(6) Easy and cheap inland and outward transport facilities, low cost of living, satisfactory climate and sanitary conditions are some of the other

conditions to be fulfilled. Nearness to skilled labour is another important condition. Local labourers lead a more responsible life, they have their responsibilities to the family as well as responsibilities to the community to which they belong; this consciousness exercises a beneficial influence on their life and, therefore, upon their daily work. In factories where the operatives are recruited from outside, an entirely artificial condition of life and work is created. An extensive and ready market for the finished goods ought to be near by. Perhaps, in this respect, we ought to be guided by the location of already existing or now extinct important centres of production and distribution.

(7) To ensure success, mills in Bengal should be planned to supply the domestic requirements. Further, the wasteful methods of marketing, generally adopted by Bombay and Ahmedabad, should be avoided. We have already seen the immense possibilities of such a market, and a mill situated at its door can be reasonably expected to pay more attention to local needs and make direct sales. The marketing side of the business is as much important as the technical side, and a mill can ill afford to neglect it. In Cawnpore several mills, besides placing a part of their production through selling brokers, run shops and have mail order business. Much of the penetration of German and Japanese goods in the Eastern markets has been due to their establishing direct contact with the consumer.

If the above safeguards and considerations are adequately attended to, there is no reason why a cotton mill in Bengal should not achieve a reasonable measure of success.

V

Scope for Employment

An attempt may now be made to show how the development of a cotton mill industry, accompanied by the cultivation of raw cotton, may help to relieve the pressure of the unemployed in Bengal.

To begin with, the cultivation of cotton may absorb a large number of our educated young men. The Bengal peasants have lost the technique of cotton cultivation. Moreover, cultivation of cotton is suitable to educated young men, as it does not require as much of physical labour as of intelligent supervision. If cotton grows, cotton markets will develop, which will require cotton merchants, brokers, ginning factories which do not require a large capital, and all the other paraphernalia, providing employment for thousands of young educated persons. It may be mentioned here that, though there are 28 cotton mills in Bengal, there is only one Bengalee party in Bombay dealing in cotton. Some training is necessary for everything :

a cotton merchant or broker must know cotton, which requires years of study and experience.

In this connection, I am constrained to remark that we Bengalees as a race do not recognise dignity of any other profession than that of law, medicine and other fixed salaried services, however servile they may be. Businessmen are generally looked down upon as belonging to a lower social strata. I have observed some of the parties who are doing well in the line thinking of giving it up on account of social discrimination : I have particularly in mind the case of certain Store-dealers who have been placed in this difficulty.

A cotton mill will employ various types of staff such as—

(*i*) Officers.
(*ii*) Assistants to Officers.
(*iii*) Departmental Overseers.

These posts ought to be filled up by educated young men. Formerly, educated men were not available, and the industry had to train up people lacking theoretical knowledge. Such men are lacking in ideas and prove incapable of keeping pace with the times.

Young men desirous of getting into the above positions should pass the I.Sc. Examination ; those wanting to enter the Dyeing Department should pass at least the B.Sc. Examination with Chemistry as one of the subjects; those aspiring to be mill Engineers should hold a degree or diploma of the

Benares Hindu University or Kalabhavan or Jadabpur.

The course of training for Superior Factory Staff must necessarily be a long one, and one has to enter the factory at an early stage of life. In our country a young man joins factory after finishing his University course, but by that time he is too grown up to adapt himself to the environment and to learn things quickly and, therefore, the practical side of his training remains imperfect. Both theoretical and practical training ought to proceed simultaneously. The Government and the University ought to put their heads together and devise some way out. The ordinary University I.Sc. course is too heavy and unnecessary for an apprentice in a factory. Can it not be made possible for a factory operative to learn Physics, Chemistry or Mathematics only at the University ? Or, is it not possible to have separate Science courses for factory people ?

An officer in the Supervising Line starts from about Rs. 50 and may go up to very high figures. We have in our mills officers drawing Rs. 1,000 as salary per month, over and above such privileges as free furnished bungalow, servants, fuel, medical help, water, etc.

The expansion of the cotton mill industry will require a large number of wholesale and retail dealers in cotton goods. At present these are mostly Marwaris. A large number of our young

men may get employed in this line as well. To ensure success as a wholesale or a retail dealer of cloth, a thorough study of the demands of the market in which he will sell is necessary. He must know what the market wants. He is not to stock goods which may be very good but for which there is no demand in the local market. Every market has some peculiarities of its own. Knowledge of the position of stocks in the hands of the merchants and manufacturers is of the utmost importance. A piece-goods merchant should further have an approximate idea of production and capacity of each Mill. As the piece-goods market at times rises and falls for reasons beyond the control of India, he should be in touch with the outside markets and should always make a thorough study of the same.

One desirous of getting into the piece-goods business should not start with a large capital but should make a small beginning and gradually develop the business as he acquires a knowledge of the market. It is a matter for gratification that Bengalees are gradually getting into the piece-goods market. When the Dhakeswari Cotton Mills was first started, there was not a single Bengalee party that came forward to make a contract even for five bales a month, but to-day there are at least 50 parties that have standing contracts for taking delivery of cloth bales varying from 5 bales to 100 bales a month. None of the parties that are now dealing with the

Dhakeswari Cotton Mills, started with a very big capital.

A cotton mill has to purchase a large amount of Stores every year, as will be evidenced from the figures of stores consumption of any mill of a decent size. So, a large number of persons may find employment in this way as well. A Store-dealer has his office comprising a few clerks and typists. The success of a Store-dealer depends upon his ability and organisation to collect information. A Store-dealer's office is really a bureau of information. He must know where and when to buy and to whom to sell. His manners should be winning and beyond reproach. He must have great tenacity. A man desiring to be a Store-dealer should begin in a subordinate position in the office of another Store-dealer. In Ahmedabad and Bombay, Indian Store-dealers are given preference when other things are equal, but, unfortunately, in Bengal it is quite the contrary: the unfortunate Bengalee character of suspicion comes into play the moment a transaction is made with a Bengalee party. Such transactions are looked upon by the Directors with an amount of suspicion. Moreover, successful Store-dealers have often been found to become mill-owners. This is due to the fact that constant touch with the industry gives them an insight into its intricacies and develops an aptitude for the same.

Again, a cotton mill of a medium size engages

about three thousand operatives on two shifts. Thus, it would provide employment not only for the surplus agricultural population but also for the wandering mass of Bhadralok youths. If decent quarters are provided in a healthy locality and proper surroundings, and if labourers are humanely treated, our young men of the middle-class will certainly flock in large numbers as common operatives. To give only one example, at the Dhakeswari Cotton Mills No. 1, fifty per cent. of the operatives, and in Mills No. 2, eighty per cent. of the common operatives, are men belonging to the Bhadralok class, most of whom are matriculates or have read up to the higher classes of English Schools. Contrary to the experience of other mills, the Dhakeswari Mills have not found it necessary to import labour from outside the province. The average earning of a common weaver may be taken as Rs. 30 per month, which goes up as his efficiency increases. An efficient weaver earns about Rs. 40 a month. Clever and intelligent weavers having the capacity to control labour rise to the positions of Overseers earning Rs. 60 to Rs. 70 per month.

It will thus be observed that in a cotton mill there is a large scope for the employment of young men properly trained in the line. But, unfortunately, the number of cotton mills is so small in Bengal that the industry can provide employment for only an infinitesimal part of its population.

COMMERCIAL DEVELOPMENT IN INDIA

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At the outset I should like to thank you for the honour you have done me in inviting me to address you. The series of lectures, of which this forms one, is an experiment for which all concerned deserve congratulation. Nothing is more important at the present time than that the Commercial community, both Indian and European, should be drawn as closely as possible into touch with educational Centres, of which this is not only one of the most important but also the largest in the whole country. Others have spoken to you about particular industries or are going to speak to you about finance, banking, and commerce. My purpose today is rather a different one. I do not propose to tell you how I think openings can be made for University students in the world of Commerce and Industry. I want instead to endeavour to set before you a picture of what I believe has been and is now the main trend of industrial development and to explain how the economic structure of the country affects that development.

Clearly, the provision of a few hundred openings in commerce for University students, important as that is, is not of itself enough. If the leaders of commerce and industry and the heads of this

University and of other educational authorities in this Province are to get together in a way that will enable them effectively to contribute to the fight against the great evil of unemployment, it is of the utmost importance that the main economic trends should be pondered and understood. Clearly, there is no more appropriate place for this to be done than in the University itself and that is my excuse for taking as my subject today the commercial and industrial development in India.

As I understand the problem, it falls into three main periods—I am talking, of course, only of very modern times :—

(1) The first period falls between about 1873 and 1903.

(2) The second period falls between 1903 and 1931.

(3) The third is that upon which we have now entered.

So far as the first period is concerned, I do not propose to say very much ; but what I would say is just this, that it was in this period, broadly speaking, that modern industry began to take root in India—at first slowly and then with increasing rapidity. This was an era during which the Administration of the country, as we know it today, largely took shape. It was also an era in which important legislation was enacted. India made rapid strides forward, and goodwill and co-operation existed between the Europeans and the leaders

of cultured Indian society. Railways, the coal industry, the jute, cotton and tea industries, all made rapid progress; while for Bengal the years from 1870 to 1900 were years of increasing prosperity. During this period perhaps the most significant fact about business development was that it was an era of almost unrestricted private enterprise under which the capitalist class, while in some cases they undoubtedly made great fortunes, also bore heavy losses.

The second era, namely, the years from 1903 to 1931, was chiefly noted for the increasing attention that Indians were paying to commerce and industry, though at first that attention was largely confined to the cotton industry. Almost from the beginning of this period, politics came to be mixed up with business; for, as we all know, the years 1904-1905 marked the beginning of the Swadeshi movement in which Bengal played a leading part. Moreover, some considerable time elapsed before the new movement really came to be understood. Partly this was due to the fact that politics overshadowed less easily perceived economic tendencies but partly also it was due to the relative slowness of the process of industrialisation in the years 1903-1916. But, from about 1916 right on until 1931, industrial development in India, increasingly carried out by Indians either alone or in co-operation with Europeans, made great strides. That was one development. Alongside this process

of rapid industrialisation, coupled with a steady increase in the ownership, control and management of industry by Indians, there was at work another development of great importance. It was during these post-War years that India for the first time began to feel over large and growing circles of society the effects of the evil of uneconomic competition and of over-production—more especially its effect on employment as distinct from its effect on prices, though its effect was equally serious in that direction too.

In the first period, to which I very briefly referred, periods of over-production and depressed prices had, of course, occurred. But in those days not only was labour scarce but private enterprise was almost unrestricted in India just as it was in the United Kingdom. The main force of a set-back in trade in those days therefore, fell upon the capitalist class, and as I have said, though some capitalists in those earlier days made great fortunes, others made heavy losses. Owing to the great risks that these early *entrepreneurs* ran it was naturally difficult to find the capital required for the finance of industry. That capital was found, was due to the managing agency system ; for the great managing agency houses, by reason of their wealth and the diverse nature of their interests, were able to stand up to the heavy losses that must almost always be faced by those who embark upon new enterprises. But in the later years of the second

period—the years immediately following the Great War—it became more possible, than it had been before, to obtain money from the general public for the finance of industry, but even so this money was for the most part only forthcoming where managing agents of repute were backing the enterprise. During this period also, the managing agents continued to play a highly important part in another way; for, having been first in the field, they had also the greatest experience both as regards the problems of management and as regards the problems involved in the finance of trade and industry. However, the striking growth of industry during this period revealed certain weaknesses in the managing agency system. Whereas in the old days the managing agents had been in the main partnerships of wealthy men who were investing their own and their friends' money, a feature of the post-War years was the formation of managing agents who relied entirely, or almost entirely, on the public for the finance of the companies they started or managed. It soon became clear that radical changes in Company Law would be required.

At this point I would pause to remind you of the four main features of the second period :—

(1) The rapid growth of industries of all kinds.

(2) The steadily increasing share of Indians in the control, ownership and management of industry.

(3) The coming into increasing prominence of the problems of over-production and unemployment.

(4) The revelation of weaknesses in the system of Company Law.

It was perhaps natural that the pains caused by rapid industrialisation should have caused discontent and even ill feeling. It was natural too that the discontent and ill feeling arising from a vague sense of frustration in the industrial sphere should have been accentuated by the rise and growth of Indian Nationalism. Moreover, during the post-War years, taxation ' both Central and Provincial ' steadily increased and India changed from a low tariff country to one in which very high tariffs prevailed and this added both directly and indirectly to the increased tax burden.

The second period, therefore, was one of growing tension—a tension that was, of course, made still worse by the fact that from 1928 onwards a world economic and financial crisis was bringing trouble and misfortune to almost every country. Dependent as she so largely is on her exports of raw cotton, raw and manufactured jute and other primary products, India suffered severely from the catastrophic fall in world prices and at the end of the second period to which I have fixed the date 1931, India like almost every other important country was passing through a period of great distress.

It will be seen, therefore, that India entered upon the third period that I have distinguished, in critical and difficult circumstances. It was quite clear to those in close touch with affairs that unless the tension could be relaxed and unless also the Indian and European commercial communities could again get back to that basis of goodwill and co-operation that had formerly existed, a prolonged period of difficulty and strife must inevitably face this country. Fortunately in the last five years, which I have described as the first five years of the third period, the tension has seemed to relax and there is evidence on all sides of increasing co-operation between Indian and European business-men. The years that lie ahead will be years of re-construction and it is to that that I would particularly draw your attention today. I know that in saying this I shall be considered by many to be unduly optimistic, for it is useless to disguise the fact that in business circles today there exists at least in some quarters an uneasiness in regard to the years that lie immediately ahead. The commerce and industry of any country can only flourish if there is confidence. Confidence, that is to say, not merely in the capacity of businessmen to succeed in the enterprises upon which they may venture their capital, but a confidence that the country is not going to be troubled by internal political strife or upset by war or unsettled conditions in other countries. Both these dangers face India today;

but I remain confident that despite disquieting tendencies commonsense will in the end succeed in overcoming the difficulties that lie ahead. The urgent need before us is, as I have said, a work of reconstruction, to which I would add the task of inspiring confidence, without which business cannot flourish and depressed trade and unemployment must continue.

If the evils of depressed prices, unemployment and over-production cannot be solved, or at least mitigated, it is evident that India can make little progress beyond her present stage of industrial development. We know that if she is to solve the problem of unemployment and to improve the standard of living of even some classes, India must face and solve those industrial problems which are, of course, not peculiar to India. In some industries, of which the Iron and Steel industry is perhaps the best example, thanks to the foresight of the able men in charge, a great advance has been made towards stability in the last ten years. But the problem is more difficult in industries where factories can be started with only a small amount of capital and where the number of units engaged is large. Among industries of this kind is one that is of prime importance to Bengal, namely, the jute industry. At different periods in its history, jute has been among those industries that have recognised the value of regulation of production and from time to time schemes have

been in force to secure this end. The last of these schemes which terminated about three years ago proved unsatisfactory, because while on the one hand it restricted existing mills the nature of its operation was such as to encourage newcomers in the field to start up additional mills though the existing machinery was already far in excess of what was required. Not only that, under the old scheme, though most mills found it to their advantage loyally to remain parties to it, one or two by threats of breaking the agreement could from time to time cause price upsets and heavy losses to others. In the end, therefore, it was generally agreed among the members of the Indian Jute Mills Association that the agreement should be terminated. Before, however, taking this step, the Indian Jute Mills Association set before Government the facts of the case. They showed how Government revenues would suffer and how the province of Bengal would particularly suffer by reason of unregulated competition in the jute trade. They also made every possible effort to persuade all engaged in the industry to form a new agreement to cover both those long established in the industry and the newcomers to it. These efforts unfortunately failed, with the result we know. Now happily, after a lapse of nearly three years, the leaders of the Jute Mill industry have been able to reach almost unanimous agreement for the future regulation of production. This is

a great and valuable step forward as the new agreement is a great improvement on any previous agreement. However, the new agreement will make it very difficult for newcomers to add to the difficulties of the industry and it will be to the advantage of all to remain within its terms. I have dealt with this point at some length because here is a good example of one form of rationalisation within an industry. It has, I know, been suggested that this new arrangement in the Jute Mill industry is in the interests only of the employers and capitalists. This is, of course, not true, and Mr. McDonald and other leaders of the industry have shown conclusively in a series of able expositions of the new agreement that everyone will in the long run be benefited. A healthy and prosperous jute industry is especially important for Bengal, since better prices for jute manufactures mean better prices for the agriculturist who grows the jute and a larger measure of prosperity for thousands of traders dealing in jute all over the province. The prosperity of the cultivator, of the dealer in jute and of the mills, reacts in turn on all those who supply these classes with articles of every kind. The cultivator when he gets better prices can buy more piece-goods and other necessities of life, while, when the industry as a whole is prosperous, every section of it is better able to pay higher price for the goods it consumes, and so in turn the prosperity of each great industry—

whether it be jute or any other—reacts on one class after another.

There are other types of rationalisation, or if you like, regulation of production, that are less satisfactory. In these days when economic planning is so much talked of and when an increasing number of people seem to think that the future hope of industrial prosperity lies in some form of Socialism, it will be useful for us to examine some of the schemes that have been advocated. For example, it has been suggested that if only the Central or Provincial Government would borrow some crores of rupees and invest the money in starting ship-building yards, motor-car factories, and other large scale industries, or invest it in some of the many small industries that come readily to one's mind, unemployment would be solved tomorrow and India would rapidly grow to greater and greater prosperity. I am afraid the solution is not so simple, and it is necessary to examine these general ideas in their particular application. Is it proposed, for instance, that the Central Government or Provincial Governments should not only raise money and invest it in industry, but actively engage in the management of industry ?

That is one form of socialism. It is the form we see in the Railways and the Post Office and there are also other examples. At one time the socialist movement in England was very keen on

the application of this form of socialism to certain types of large scale industry, but during recent years all but the most extreme exponents of this idea have come to recognise that its application to industry in general, or even only to one or two so-called key industries, would involve the creation of a huge bureaucracy, while at the same time it would do little of itself to cure unemployment. In other words, though it might perhaps get rid of some of the alleged disadvantages of private enterprise, it would create others that in the long run might prove far more hurtful. At the best a solution on these lines would merely help, at the expense of the rest of the community, those who were lucky enough to get into the organisation.

There is another form of socialism which has a good many advocates in this country. Under this system Government would provide all the money required to start or finance industry and even, as some suggest, guarantee dividends or by raising a public loan on which, naturally, interest would have to be paid out of tax revenue, find the money in that way and retain for itself the profits, if any. Broadly speaking, this was what was done in the case of the State-owned collieries. These have been acquired and developed by loans from the Central Government and an enormous amount of public money has been sunk, on much of which little or no return is recovered by Government. This system also frequently provides that while

the actual cost of the plant and machinery and all the cost of development are borne by the Government, private enterprise is used to organise the labour force required. By such a system the whole burden of the possible loss is shifted on to the shoulders of Government. Whether or not such a system is suited to the Railway collieries it is certainly not suited to any other form of industry, least of all is it suited to those industries which have to sell their produce to thousands or even millions of people not only in this country but outside it. Some of those who have been thinking along these lines do not advocate direct finance of industry by the State but advocate the development of so-called industrial banks. Briefly, their idea seems to be that a number of banks should be started by raising money from the public under Government guarantee and these banks in turn should interest themselves in the finance of industry. People who advocate this system are often heard to condemn the Joint Stock Banks, because these have, in their opinion, failed to do what it is thought they should do in the way of financing industry. This shows a complete misconception of the function of the Joint Stock Banks. These banks that have your money and mine in their safe keeping are obliged to be ready to pay us back our money whenever we require it. In consequence, they dare not tie up our money—which is really the only money they have avail-

able—in industrial concerns where they may wait for years before they can get that money back even if they could be sure of getting it back at all.

I shall revert to the question of Banks again in a moment.

If we dismiss, as I feel we must, socialistic enterprise of these two kinds, we fall back on some other form of control and management in industry. As I have indicated, there was a time when industry was left almost completely unregulated and the policy known as "laissez-faire" held the day. There are very few now-a-days who believe that such a system is suited to modern conditions. Almost every important country in the world now insists on some form of control or interference in industry, and like the United Kingdom India is no exception to this general rule. On the contrary, both in the United Kingdom and in India, Government interferes with industry in all sorts of ways ; some of these methods of interference are good, some are bad, some of them are inevitable and necessary, while others are not only not necessary but undesirable from every point of view. Let us for a moment examine some of the ways in which Government today interferes with industry and what sort of control is possible and what is not.

Government has passed legislation dealing with Trade Disputes. It has also passed legislation to regulate Trade Unions, Factories and so on. By its methods of taxing industry, Government is

already a very large shareholder in industry; in fact, in every industry it is the most important shareholder since taxes must be paid before any profit can be distributed to shareholders in the form of dividends. But there is another way in which Government interferes with industry, namely, by its tariff policy. By means of tariffs Government can encourage some forms of industry or discourage others, and it is obvious, therefore, that the tariff policy of Government is of enormous importance to industry as a whole—perhaps even more important than the influence of direct taxation. In other words, tariff policy is a means of controlling the direction of trade.

As you all know, the Government of India has followed, during the past fifteen years, the policy known as "the policy of discriminating protection," that is to say, the Government in framing its policy for the protection of special industries first satisfies itself :—

(1) That the industry possesses natural advantages such as an abundant supply of raw material ;

(2) That the industry is one which without the help of protection is not likely to develop at all or only to a small extent ;

(3) That the industry is one which will eventually be able to face world competition without protection.

Apart from being satisfied as to these three conditions, the Government of India has also got to take into account the heavy burden that protection imposes upon the cultivator and still more upon the middle classes for whom the cost of living has steadily increased with each increase in the level of import duties. Also, Government has to consider the fact that import duties provide the largest single item in the budget of the Central Government so that any tariff policy must be so adjusted as to secure to Government this large source of revenue. These import duties are of two kinds—the definite protective duties, the revenue from which is naturally expected to decline, and the revenue duties, which as their name implies are primarily designed to bring in revenue. However, revenue duties today are in fact already in many cases so high that they have proved to be a disguised form of protection behind which an increasing number of industries is being built up.

But in addition to these important forms of interference with industry, Government also controls industry through such measures as the Company Law as well as through laws governing particular industries as for instance the Indian Mines Act, laws relating to the marketing of produce and so on. Legislation of this type, therefore, calls for special consideration by anyone who is interested in industrial or economic planning. In addition, of course, it is necessary to bear in mind

the units of business that form the basis of modern trade and industry; for as you know when men combine to engage in any commercial or industrial enterprise they form themselves into partnerships or into limited liability companies. Broadly speaking, the difference between these two types of combination is this: In a partnership the whole of a man's private fortune is available if required for the needs of the business; in a limited liability company he only places at the disposal of the business the amount he has invested in the shares or debentures of that business or in any private loan he may make to it. There are, of course, many other differences between a partnership and a limited liability company, but for the purpose of this problem that we are now considering, namely, the organization of industry, these may be ignored; for—again speaking very broadly—the Company Law determines the nature of the structure of combinations among men in their business enterprises. In other words, Company Law is in one sense part of any plan for the organization of industry. The enormous influence of the precise nature of the Company Law of any country will, therefore, be apparent to you and in a sense it ranks with tariff and taxation policies in importance.

As you all know, the Indian Company Law has been recently overhauled and changes of the most far-reaching kind have been introduced. The two

men who were chiefly responsible for this, were a very distinguished Bengalee, Sir N. N. Sircar, who in this Herculean task was assisted by another Bengalee, Mr. Susil Sen. By this work alone, and especially when one takes with it, as one must, the new Insurance Law, Sir Nripendra has done much to decide the future course of the development of Indian industry. Inevitably, some years must elapse before the full effect of the new Company Law will be seen, but it is most important that every one—both in commercial circles and in centres of learning such as this—should endeavour to understand what is likely to be the effect of this new law; because like taxation it goes to the very roots of the financial, commercial, and industrial structure of the country. It strikes at and will to a large extent eliminate certain abuses that had crept into company management and into the managing agency system. Above all, it makes managing agents really responsible, as they ought to be, to the directors of the company who are the representatives of the shareholders. It also makes all company directors far more responsible to their shareholders than they were before, and it is, therefore, an important advance in the direction of the control of industry by "the many" instead of by "the few." So far as managing agents are concerned, the effect of the new law will be that their essential function of financing industry will tend to be restored to prominence and it is my firm

belief that so far from the day of the managing agent being over, as some suggest, it will be found that the managing agent has still a great part to play in the industrial development of India.

I will, at this point, return to the banks, more especially, the Joint Stock Banks, to which I referred earlier in this lecture, for they too have a very important part to play in the development of industry. Industrial finance falls, broadly speaking, into three categories :—

(1) long-term finance ;

(2) medium-term finance ;

and (3) day-to-day finance.

In regard to the first, this is, of course, required for the purchase of essential fixed assets, such as machinery, buildings and so on. Obviously those who provide this type of finance cannot expect to get their money back at a moment's notice and they must also be prepared to face the fact that if the enterprise fails either through mismanagement, or for any other reason, they will lose their money. Here, therefore, is the opportunity, as some suggest, for Government to come forward with the public's money and invest it in capital expenditure of this kind. As I have already indicated to you, I believe this to be an unsound method of finance, because in the first place India is a poor country and cannot afford to take big risks with such little capital as she has, and in the second place it would be

practically impossible for Government to provide a sufficient number of highly trained and highly qualified men to look after large amounts of capital so invested. In my view the primary responsibility for finding this type of finance rests with the class of finance house that is known in India as a managing agent and those members of the public who have confidence in the ability of the managing agents to make the enterprise a success. Obviously, where there is a risk that by bad management or for some other reason capital expenditure may be wholly lost, those responsible for finding this type of finance will demand some voice in the direction and management of the company for which capital is provided—that, in fact, is how the managing agents came into existence Under the Company Law, managing agents will now only be allowed to appoint up to one-third of the directors of a company. Now experience has shown that where companies have been floated with the backing of managing agents or finance houses of repute, the general public is far more inclined to invest its money than is the case where this does not hold good. It is, of course, known to some of you that especially in Western India there are signs of the development and growth of a class of finance house pure and simple, that merely underwrites some new issue of share capital or of debentures and is paid for this service without seeking to acquire any part, say in the further management of

the company, just as there are finance houses in England that do this ; but I think it likely that for a long time to come the managing agent who finds finance and is also prepared to provide management in some degree, will hold the field practically unchallenged, as the risks of industrial finance today are greater than they have been for many decades. Moreover, the old established managing agents, whether Indian or European, with their long experience in these matters are bound to play an important part merely for that very reason that they have the experience, they have qualified staff and they have behind them the money. At the same time, it is, of course, recognised that changing conditions require changing methods and all the best managing agency houses recognise that if they are to continue to play the part that they can, and I am sure will, play in the development of Indian industry, they must adapt themselves to these changing conditions.

It is absolutely unsound and very dangerous for insurance companies and the joint stock banks of deposit to venture largely into the sphere of long-term finance for industry. Both insurance companies and these banks of deposit must keep their resources liquid, and it is for that reason that both so largely interest themselves in Government securities of all kinds. But, the best class of industrial debentures will always be attractive to insurance companies and these companies can in

this way play their part in financing industry, while the joint stock banks of deposit and the exchange banks play their own very important role by the provision of what I have called short or medium term finance, that is to say, the acceptance of commercial bills and the provision of loans to cultivators and traders for the finance of crops and the sale of goods. This form of finance generally covers periods of anything from three to twelve or even eighteen months, and the security behind it is the actual crop or the raw material of the manufactured article. The Reserve Bank has been actively interesting itself in this aspect of the problem of the finance of industry and is seeking to help the joint stock banks with help and advice of every kind. For a long time past too, it has been urging that everything that can be done should be done to encourage the use of the Inland Bill of Exchange.

Lastly, there is the third type of finance that I have called day-to-day finance. In some cases it is provided by managing agents, but in the majority of cases it is provided by the banks, so that here also the joint stock banks have an important part to play.

Now, as I have already mentioned, the joint stock banks are frequently accused of failing to give adequate credit to businessmen. They are accused too of demanding unreasonable security except from the favoured few, and, because the

European witnesses before the Indian Banking Enquiry Committee expressed themselves as entirely satisfied with the credit facilities afforded by Banks, this has been held as a proof that the joint stock banks and especially the exchange banks have unduly favoured Europeans and given them credit which they would have refused to Indian customers. This charge is completely unfounded and has only arisen, as I believe, because

(1) Those who make the charge have completely overlooked the fact that the European witnesses before the Banking Enquiry Committee were not only men of great financial and commercial experience but were men closely associated with firms, companies or banks, among which the nature of the credit facilities that joint stock banks can offer was fully understood. Such men obviously would not dream of expecting banks to provide them with credit that should properly be forthcoming from quite a different source ;

(2) Those who accuse the banks of favouring some customers against others and more especially of favouring Europeans against Indians overlook the fact that just as in India the Joint Stock Banks have been accused of favouring some classes and not others, so similar charges have been made in the United Kingdom.

The late Lord Leverhulme, for example, one of the foremost industrialists in England and a millionaire many times over, was a bitter critic of the great English joint stock banks on this very ground. But when the facts upon which he largely based his charges are examined, it will be found that, great industrialist though he was, he made precisely the same mistake as many people make in this country. His mistake was that he considered that the banks should be prepared to advance money in circumstances when sound banking practice clearly indicated that money should not be advanced. For, remember the money at the disposal of the joint stock banks is the money that you and I deposit in their safe custody and which we expect them to repay to us the moment we want it back. If the banks cannot repay us our money when we want them to do so, they immediately become bankrupt. Every case of banking failure that has not been due to fraud or illegal operations of some kind or another, can be directly traced to the failure of that bank strictly to adhere to the sound maxim that its funds must *always* be kept liquid. In other words, it is fatal for any bank that accepts deposits from the general public to invest its assets in securities that cannot be realised immediately. That is why well-run banks avoid investing their assets in industrial shares or in debentures raised by companies for the purpose of buying such essential

fixed assets as machinery, buildings and so on. Sound banks know that this policy in the long run must always be dangerous and they, therefore, confine their loans to those who want the loans for purposes that will make it possible for the banks quickly and easily to get their money when that money is required by their depositors, to whom, of course, it belongs.

Now you may say, among those who criticise the banks are men who agree with every word you have said, but who argue that if it is not the function of the banks to provide money for such essential fixed assets as buildings and machinery, that is all the more reason why a new type of institution should be started, namely, the so-called industrial banks, to which I have already referred. I am afraid I cannot agree, as in my view it is absolutely wrong to take money in this way from a large number of small investors or depositors who might, and indeed probably would, sooner or later require their money back.

In this connection it may perhaps be as well to dispel the erroneous impression that the great German Banks of Deposit invest their depositors' money in industry in the manner that it is suggested should be done by the industrial Banks in this country. It is quite true that the German Banks are very closely interested in industry and are represented on the Boards of very many Companies, but it is doubtful if they hold

investments in industrial concerns to any large extent. Thanks to the new law sponsored by Sir Nripendra Nath Sircar, many of the more obvious abuses will be effectively checked if not stopped altogether. As I have said, Managing Agents will be more responsible than before to the Directors of a Company and the Directors of the Company will in their turn be responsible to the share-holders. These changes, however, will have the effect of going beyond the immediate protection of share-holders whether large or small. As a result of the much more stringent Company Law, they must now obey, individuals will be more cautious before they form new Companies. For example, in recent years a large number of new Sugar Companies were floated which really should never have come into existence at all. The result was hopeless chaos in the industry due to over-production. This in its turn not merely caused heavy losses to the share-holders but serious losses to the tax-payers as well. It is my belief that had Sir Nripendra Nath Sircar's Company Law Amendment Act been passed five years sooner than it was, many of these Companies would not have come into existence, or if they had, would not have been able to obtain public money.

Summing up, therefore, what I have already said, the conclusion is reached that industrial development, in so far as it depends upon the action of the

State, is profoundly influenced by the policy of Government in the following directions :—

(1) First of all, the development of industry and trade is greatly affected by the Government Tariff policy.

(2) Secondly, it is affected by direct taxation—that is why a sound Income Tax Law is of very great importance.

(3) Thirdly, the development of industry is affected by the nature of the legislation enacted by Government to regulate the terms of employment and conditions of services of Labour by Factories Acts and so on.

(4) Fourthly, industrial development is inevitably profoundly affected by the nature of the Company Law as well as by all other Laws of a like nature that regulate the conditions under which Commerce and Industry are carried on.

Those, therefore, who are anxious to improve India's industrial organisation in a manner that will not merely strengthen her development in that direction but do so in such a way as to insure that the country in general as well as those engaged in industry and commerce should benefit, will do well to consider first of all the working of existing commercial and industrial legislation. I have read several of the more recent books of economic planning that have been produced in the United Kingdom; but for the most part it seems to me that the authors of these books, prominent politicians and

economists though they be, have attempted to deal with this difficult problem from a general theoretical standpoint. To-day all thoughtful people in Bengal realise that there are several directions in which the economic position of the Province can and should be improved. This will not be done by the writing of theoretical treatises, however brilliant, nor can it be done without co-operation. The problems of this Province can only be solved if all communities co-operate to this end. A seat of learning such as this can do much in this direction and it is for this reason that, as I said in the beginning, I welcome this series of lectures. I sincerely believe that the University authorities will not regret their decision to attempt in this way to bring the University into closer touch with both Indian and European commercial circles. Once before in recent years we proved that co-operation between politicians and businessmen of all communities for the common good of this Province was crowned with success. I refer to the united stand taken by all communities in demanding that financial justice should be done to Bengal by giving her a fair share of the enormous revenues she raised. As a result of our demand, Bengal was given $62\frac{1}{2}\%$ of the revenue raised from Jute produced in Bengal; in addition the method by which the Provinces will in future share in the proceeds of the Income Tax gives Bengal her fair share. What was done in 1933 in the matter of finance can, I am sure,

be done again in other directions, provided there is trust and confidence and a frank recognition that it is quite possible honourably to differ as to the means by which the common end may be achieved.

BANKING

BY J. C. SEN, B.A. (Harvard)
Agent, Comilla Union Bank, Ltd., Calcutta.

I am indeed very much obliged to Dr. Syamaprasad Mookerjee for giving me this opportunity of meeting you all. I come before you not as a practitioner of the dismal art of money-lending and money-borrowing but as a fellow-student who, though he left the portals of University ages ago, has yet managed to maintain his interest in studies which have been useful in the pursuit of his chosen vocation. Businessmen, in the daily performance of their duties, are apt to become narrow and it is for this reason that they appreciate such rare occasions when they are privileged to meet youngmen whose idealism has not yet become blurred by contact with hard realities of the world. At any rate, whoever conceived the idea of bringing business to the University and the University to business, hit upon an excellent plan by which both are bound to benefit. I venture to think that such contact will broaden our mutual outlook and enable us to perform our respective functions more efficiently.

Changed Ideologies since the Great War

You are aware of the fact that since the Great War our ideologies about many things have changed

out of all recognition. The old *laissez-faire* policy stands discredited; we are living in the age of planned economy. More and more initiative in economic matters is passing into the hands of States and a time may come when, on the Soviet model, the State may undertake all the economic functions of a country. The War and its aftermath have thrown the economic machinery out of gear; we are still groping in the dark and by bold and novel experiments trying to restore the economic equilibrium. The war that was to have ended all future wars has introduced more disharmonies, and to-day a substantial portion of every nation's wealth is being poured into manufacture of implements of death.

Deterioration in Standard of Living

In consequence, budgets of most countries are unbalanced, taxes are increasing and huge debts are being piled up. The heavy drain caused by war preparations is forcing the people to curtail expenditure on consumable goods resulting in steady deterioration in their standard of living. Many countries have been forced to resort to strange contrivances; export is stimulated by subsidies and import is strictly regulated by barter and other arrangements.

Planned Economy

Self-sufficiency has become the dominant policy of some States and they are determined to sell more

than to buy. We seem to have forgotten the simple truth that international trade depends on exchange of commodities, and if we refuse to buy other peoples' goods we impair to that extent their capacity to purchase our goods. The idea has become deep-rooted that economic laws have no validity and that the State can twist them in any way it likes. The examples of various States are cited to show how planning has made the impossible possible and how the prosperity of a State can be magically multiplied even though the major portion of its wealth is diverted to unproductive purposes. Planning, therefore, is the order of the day. If we dispassionately analyse its implications we shall find that it means ultimately some form of State coercion to compel the individual to conduct his business in a particular way. An interesting illustration of this was given by the *Statesman* in an article under the caption "Germany in 1938." We are told about "the dissatisfaction of the peasants with an agricultural policy whereby their every action is dragooned in the interest of a planned economy...... Among employers of labour there is opposition to a regime which has become increasingly anti-capitalist and has imposed upon the industrialist an immensely complex and irksome system of control."

Perhaps it is suspected that private enterprise, because of the private motive, has failed to achieve balanced economy, thereby bringing about alternate fits of boom and depression. Eliminate the indivi-

dual, they say, and the State will so plan production and distribution that there will be just enough for all without any surplus or deficit. The picture is no doubt attractive, but it may be questioned whether the results of State planning that are being tried in many countries have proved so conclusive as to make the private trader a superfluous parasite. May it not be said that disruption of economic activities is due to our own action in going counter to economic laws and that planning is really an attempt to patch up the broken fragments ?

"New Deal" in America

America is the only democratic country where planning is being tried on a huge scale under the name of "New Deal." We are bound to admit that, at a critical moment, President Roosevelt, by his bold initiative, succeeded in rescuing the Americans from the slough of despond into which they had sunk. From unbounded admiration which was once felt for his measures, opinion in America is veering the other way and informed criticism is being persistently directed against centralising tendencies which are said to be retarding the upswing of trade. They claim that policies which might have been beneficial during a short period have become injurious by being continued over a longer period and that recovery would have been much more healthier and quicker if economic laws had been allowed to function in the normal way.

They point out that by limiting the acreage of cotton cultivation and by maintaining a fixed minimum price for cotton—a price much above the world price—cotton cultivation in other countries has been stimulated and America has lost for ever a good portion of her cotton trade.

Brazil and Coffee

Similar experiments, tried in Brazil, for maintaining high price of coffee, by withholding a portion of it from the market and even burning the surplus stock, entailed heavy loss to the State and had to be abandoned. The result is interesting as will be seen from the following comments of the London *Economist* in its issue of December 17, 1938 : " One year has passed since, in November, 1937, Brazil abandoned her fixed price for coffee exports, and the change in policy has met with more favourable results than most observers dared to expect. It is true that the price of Brazilian coffee has fallen considerably; the London quotation for Santos Superior declined from 47*s*. 6*d*. per cwt. in November to 27*s*. 6*d*. per cwt. in April last. Since then, however, there has been a steady improvement, and at present the price for this grade is about 34*s*. 6*d*. per cwt. But this decline in price has been more than compensated for by a marked increase in Brazil's exports of coffee. Exports from Rio and Santos in the first five months of the present season from July to November

totalled 5·7 million bags or 70 per cent. compared with the corresponding period of 1937. Part of this increase has been at the expense of other producers of coffee, but the greater part of it represents an increase in demand; in these same five months, world deliveries totalled 11·1 million bags, against 9·5 million bags in the corresponding months of the previous season."

Production Restricted by International Agreements

From State to international agreements to restrict production was the next step, and quotas have been fixed to regulate production of copper, tin, lead, zinc, rubber, tea, sugar, etc. These measures have no doubt stabilised price for the time being, but it may be questioned whether in the long run these will not prove more detrimental to the interests concerned. Already complaints are being heard that those which are more favourably situated to produce quality goods are being penalised for the benefit of those which produce inferior goods. Scarcity, instead of plenty, seems to be the recognised industrial policy of the present day. If we examine the past history of industrial evolution, we shall find that consumption of commodities has increased *pari passu* with reduction of price. Those which were once in the category of luxuries have come into common use by price reduction. Motor cars are an outstanding example of this. Henry

Ford showed the way how by cheapening the price of motor cars it has become possible for the average man to own a car. Our wants are insatiable; it is not that demand is non-existent, simply it is ineffective. If the price of a commodity can be brought within our buying range, increase in demand will more than compensate for the lower price per unit.

I hope, I have not bored you by drawing your attention to the complexities of modern economic problems, in the correct solution of which our well-being to a great extent depends. As rational beings it is our inherent right not to be overwhelmed by weight of authority but to examine all aspects of a proposition, submit it to the test of reasoning and accept that conclusion which is likely to prove more beneficial in the long run.

Change in Banking Practice

It is natural that, in the midst of such vast changes in other spheres of economic activities, banking should also undergo many changes. Gold standard has been suspended by all countries, balance of trade is no longer settled by free shipment of gold, highly intricate exchange equalisation accounts have been set up by various Governments to smooth out violent fluctuation in exchange. Almost everywhere restrictions are in force against free movement of goods from one country to another. International trade has, therefore, con-

siderably shrunk and bills of exchange, which were an important item in bank portfolios, are tending to become fewer and fewer. In Great Britain, where the bill market was the best organised, internal bills of exchange have been a diminishing factor for many years owing to the expansion of branch banking and the elasticity of overdraft facilities. In consequence banks have been forced to invest an increasing proportion of their assets in gilt-edged securities.

Bills of Exchange

In Barclay's Bank's *Monthly Review* of October, 1938, you will find a very interesting article on the London discount market. It says that " the Discount Market owes its growth to the outstanding position of London as a world financial centre and to the liberty formerly enjoyed by traders to choose the most advantageous way of financing the interchange of goods between nations. There has been no diminution in the capacity of London to carry out its former functions, but during the last ten years the freedom of foreign merchants to make use of the facilities it continues to offer them has been sadly curtailed. A considerable part of world trade to-day is conducted by means of clearing agreements, barter and compensation transactions, and is hedged about by more or less rigid systems of exchange and import control which tend to reduce the volume of bills available to the Dis-

count Market......As a result of the changes of the last twenty-five years, therefore, the London Discount Market is no longer predominantly concerned with the financing of international trade but has perforce assumed as its main function the provision of funds to meet Government requirements, either by discounting Treasury Bills or by holding gilt-edged securities."

The following estimates indicate clearly the heavy falling off in bills which coincided with the depression.

Estimated Average Amounts of Bills of Exchange and Promissory Notes Outstanding

Financial year ended 31st March.	Inland Bills of Exchange and Promissory Notes. (In £'s millions)	Foreign Bills of Exchange and Promissory Notes. (In £'s millions)
1913	154 0	313·5
1920	201 6	321·8
1923	188·4	241·7
1926	217·6	415·3
1929	197·6	365·0
1932	141·8	186·0
1933	111·3	136·2
1934	111·0	134 4
1935	119 4	134·2
1936	121·3	138·2
1937	132·7	143·0

Bank Amalgamation

Another interesting development of post-War banking has been an accelerated movement towards bank amalgamation. In some countries this has been brought about by private initiative and in others by the direction of the State. Experience has proved that a few strong banks with larger resources are better able to serve the interests of a country rather than innumerable small banks with inadequate resources and which are incapable of taking concerted action in times of emergency. The British banking system is considered, by those qualified to judge, to be the best banking system in the world. The banking resources of Great Britain are concentrated in a few big banks. It is sufficient proof of their strength that, during the Great War and the devastating period of depression, the end of which is not yet in sight, the British banking system has remained unshaken. In America, which boasts of more banks than any other country, even a crisis of moderate intensity has forced thousands of banks to suspend payment. It is almost inconceivable to think of bank failures in Great Britain now-a-days.

Bengal—the Land of Small Banks

In India the indigenous banking system is a mixture of the British and the American system. We

have a few big banks and innumerable small banks which, by courtesy alone, can be called banks. Bengal is *per se* the land of small banks. There are about half a dozen banks whose capital and reserve fund exceed Rs. 5 lacs, while the majority have not more than a few thousand rupees as their paid-up capital.

Loan Offices

Before dealing with these banks it will be interesting to examine the history of our Loan Offices which occupied until recently a predominant position in Bengalee banking. It was estimated that in 1929 there were 782 Loan Offices in Bengal. Where are they to-day ? Most of them have sought protection under Sec. 153 of the Indian Companies Act and are not functioning at all. The paid-up capital of most of these Loan Offices was very small ; they depended for their working capital on short term deposit. The deposit thus secured was lent out mostly against personal security, land and buildings. Such loans, even in the best of times, are not easily realisable, and when the depression set in after 1931, there was catastrophic fall in the price of agricultural commodities bringing in its train fall in the value of land and buildings. The flow of fresh deposit dried up and there was insistent demand for the repayment of old deposit which the Loan Offices could not

meet. They made the fatal mistake of borrowing short and lending long.

Their Defects

They seem to have been obsessed by the idea that they will not be called upon to repay a large percentage of deposit, and if any demand did take place, would be able to meet it out of fresh deposit. I do not deny that Loan Offices have rendered some service to rural communities in far away places, but it is questionable whether such loans, not being used for productive purposes, did not do more harm than good. The true criterion of a bank's success or failure should be judged by the conditions of its customers. Have they with the help of the bank succeeded in improving their lot ? Or, have they become more and more indebted and lost all hope of salvation ? Facile credit often leads to extravagance in social ceremonies and being unproductively spent becomes burdensome to the borrower. The *Mahajan* with all his faults could not do as much harm as banks which, with large deposit from the public, lent out freely against land, buildings, etc., at usurious rates of interest. In fact most of the Loan Offices followed closely the technique of the *Mahajan* and like him did not care what happened to the borrower so long as they could extract the maximum rate of interest. There was no conscious effort to increase

the well-being of the community, but to grab as much of the existing wealth as possible. Banking conducted in such a manner is bound to pauperise the borrowers, and we need not waste our sympathy for institutions which were managed in contravention of elementary principles of banking.

Bengalee Banks

With the collapse of the Loan Offices there was a temporary lull in the floatation of banking companies. But again great activity is evident in the formation of banks in Bengal. It is doubtful if change of name has brought about any change in the business outlook of our banks. One significant fact to be noted is that most of these banks have been started in far-off mofussil towns of East Bengal not reckoned as important trade centres. The common features of these banks are small paid-up capital, board of directors composed predominantly of lawyers, and management by men without any practical experience of banking.

Vicious Competition

In certain towns there are said to be 30 or 40 banks though there is hardly enough business even for two. As a result there is unhealthy competition of a vicious type. Savings being limited, there is keen competition for deposit and the rate of

interest is often pushed up by a process analogous to auction bidding.

We may derive satisfaction from the fact that during the past few years Bengalee banks have grown by leaps and bounds, but our satisfaction should be tempered with the knowledge that the very large increase in our deposit is mainly due to abnormal lowering of interest rate by first class banks, because channels of profitable investment have considerably shrunk. There is a class of people who are prepared to take a certain amount of risk in order to earn a higher rate of interest; it is this class mainly who are patronising our banks.

High Rate of Interest Paid on Deposit

The average rate of interest paid by most of these banks is from 5 to 6 per cent. The crux of the problem is this: they may secure deposit at higher rates, but how are they to lend against good securities when other banks are prepared to advance at rates lower than their deposit rate? Those who can offer first class or even good second class securities will not come to them and they have to be content with third or fourth class securities. From the point of view of ultimate realisation these may be perfectly good, but a bank's solvency depends on its ability to pay on demand and not on its expectation to pay at some future unspecified date.

The fundamental principle of banking is simple enough if we constantly keep in mind the fact that a bank trades with its depositors' money, some payable on demand and others maturing at stated intervals. If for any reason there is distrust, it may be faced to meet heavy demands without the wherewithal to pay it.

Lock-up Investment

When a borrower agrees to pay a much higher rate of interest than the prevailing rate, the presumption is that the quality of his securities is not beyond suspicion. Very often these are of lock-up nature and, therefore, unrealisable when the bank is urgently in need of cash. High rate of interest paid on deposit forces a bank to invest in lock-up securities on which only higher yield can be obtained. If a substantial portion of a bank's asset is thus locked-up, its ability to meet any sudden or large demand is very much impaired. On this rock the Loan Offices foundered and I hope the same fate will not overtake our banks. The extremely narrow view that a bank is successful because it pays extravagant dividend to shareholders, large emoluments to its managers and high rate of interest to its depositors should not be tolerated for a moment. Its position is that of a trustee on behalf of the depositors and its business must be conducted in the interests of the public.

Standard of Liquidity

What is the standard of liquidity that a bank should usually maintain ? In India, in authoritative quarters it is held that a bank should keep at least 30 per cent. of its deposit in cash and Government securities. In the Banking Supplement of the London *Economist*, dated May 15, 1937, in an article under the caption "Bank Advances," it has been stated that "bank's ratio of investment plus advances ought not to exceed 75 per cent., leaving the remaining 25 or 30 per cent. for more liquid assets." How strong is the liquid position of the "Big Five" can be seen from the following table.

Percentage Ratio to Deposits*

Financial year ended 31st March.	Cash, Call Loans and Bills.	Investments.	Advances.	Investments plus Advances.
	%	%	%	%
1929	34·2	13·0	56·6	69·6
1932	33·2	15·5	54·5	70·0
1933	37·4	25·2	40·1	65·3
1934	32·6	28·7	41·4	70·1
1935	31·6	31 1	40·0	71·1
1936	33·1	28·9	40·6	69·5
1937	32·3	28·6	41·7	70·3

* The total of the percentages slightly exceeds 100 per cent. owing to the surplus of capital and reserves over premises.

British Standard

At the forty-fourth ordinary general meeting of Barclay's Bank, Ltd., held in London, on 19th January last, Mr. Edwin Fisher, Chairman of the Bank, analysed the balance sheet and gave detailed explanation about the various items entered in the Assets side. As these are not usually available from condensed statistics, I will take the liberty of quoting from the speech, as it shows the high degree of liquidity and quality of assets which are typical of British banks.

The total liabilities of the Bank on current, deposit and other accounts, on 31st December, 1938, was £433,081,185. Against this, the bank had cash on hand and with the Bank of England £53,241,449 and the ratio of this sum to the total of current, deposit and other accounts was 12·29 per cent. The next item, balances with British banks and cheques in course of collection, amounted to £14,873,119. Then, money at call and short notice was £26,207,550. It consists of money lent in the money market, mainly to bill brokers, although a minor part is represented by loans to members of the stock exchange. The sums lent are repayable at call or short notice and the loans are made against easily realisable securities, the bulk being secured by Treasury Bills and other bills discountable at the Bank of England.

Bills discounted amounted to £54,594,153 and consisted entirely of maturities not exceeding three months, and the purchases are so arranged that bills are continually maturing and these included £30,455,000 of Treasury Bills.

The total of these four exceptionally liquid assets represents no less than 34·38 per cent. of current, deposit and other accounts. Investment stood at £96,876,802. Of this total £89,527,002 was securities of, or guaranteed by, the British Government and a very high proportion of these has a definite maturity date. The ratio of investment to deposit comes to about 22·37 per cent. bringing the total liquid and semi-liquid assets to 56·75 per cent. of deposit liabilities. The amount of advances, therefore, is only about 43 per cent. of deposit liabilities. Surely these are impressive figures.

You are doubtless familiar with the balance sheets of our banks. It will be interesting if you will work out their percentage of advances to deposits on the same line as that of British banks and find out how far they deviate from the British standard.

Liquid Securities in Mofussil

A question is often asked by mofussil banks as to how they are to invest in liquid securities since such are not available in their locality. It seems to me that there is some misapprehension regarding

the nature of liquid securities. Government securities, stock exchange securities, negotiable bills of exchange and gold bars are not the only class of liquid securities ; that security which can be realised within a relatively short period and without any loss, satisfies all the requirements of a liquid security. In Bengal, seasonal agricultural crops are ideal types of liquid securities. If banks have their own godown, advances can safely be made with adequate margin against stock of seasonal agricultural crops stored in their godown. There is local market for these commodities, and at any time these can be disposed of. The margin taken should be sufficient to safeguard against loss. This is the type of banking that benefits both the lender and the borrower.

Fixed Minimum Price

When agricultural crops are harvested their price is usually low, but by holding these for a few months better price can be obtained. It is not a fixed legal minimum price, but credit facilities at a reasonable rate of interest against his crop that the cultivator requires. A minimum price may be fixed by law but how is it to be made effective ? The buyers cannot be compelled to buy at a price which they consider high, therefore the State will have to buy up a substantial portion of the stock, store the same, and dispose it of as best as it can. In America we are told that efforts are being made on

all sides to find a way out of the *impasse* caused by the disastrous burden on the statistical situation of the eleven million bales of loan cotton. Our finances being what they are, I do not think it is practicable for the State to undertake such a venture which has proved burdensome even to a rich country like America. The real difficulty of our cultivator is that he is needy and, not having any spare capital, is forced to sell his crop as soon as it is harvested.

Seasonal Agricultural Crops Best Liquid Security

Now if a bank would advance him 75 per cent. of the value of his crop by storing it in its own godown, then he would be relieved of the pressing need to dispose of his crop at a low price and could wait till the price improved. The very fact that the cultivator is not in desperate need of disposing his crop immediately, would serve to maintain price at a reasonable level. I believe this to be a promising line of business which Co-operative Societies may profitably undertake. The commercial banks with larger resources can do business of this nature on a bigger scale. It is the safest kind of business and at the same time this is real banking, since it equally benefits both the lender and the borrower. I do not minimise the difficulties of breaking through age-long custom, the grip of the *Mahajans*

who are bound to offer stout resistance, but by tact and perseverance there is no reason why a good portion of this business cannot be secured by banks.

Function of Banks in relation to Industries

There appears to be some misapprehension regarding the function of banks in relation to industries. In some quarters it is held that one of the main functions of banks is to support industries to the fullest extent, meaning thereby that they should supply the major portion of the capital required for plants and machinery as well as working capital. It is my experience that most industries are started in Bengal with insufficient capital. Where rupees ten lacs are required, the promoters, as soon as they raise rupees two lacs, buy land, erect buildings, and then approach banks for loan to purchase machinery by mortgaging the land and buildings. When the machinery arrives, it is hypothecated and further loan is raised to purchase more machinery. By the time manufacture starts the industry is heavily indebted and very soon it is in financial difficulties.

Banks Cannot Supply Fixed Capital

It is not the function of commercial banks to make block advances ; their main function is to

provide short term credit. We are not strong enough to support industries by advancing them the major portion of their fixed capital requirements; if we do so, we shall ourselves get involved and be unable to render that little help which we are doing now. I have come across many industries which are in chronic financial difficulties. The energies of the organisers are dissipated by running hither and thither to raise money to meet their pressing needs. Often they fall into the clutches of money sharks and raise money on hundies bearing interest at anything from 12 to 48 per cent.

Why Required Capital Cannot be Raised

In these days of keen competition when the margin of profit is low, how is it possible for industries to survive if they have to pay such usurious rates of interest? It is not that banks are not interested in development of industries, but it is beyond their capacity to make good the shortage of capital. If we inquire into the causes as to why our industries are unable to raise the necessary capital, in most cases we shall find that the projects are sponsored by persons who possess very little experience of the industries and of whose standing and means the public are ignorant. They have, therefore, to pay very high commission for selling shares; money comes in by driblets, necessitating

delay in commencing business, which results in frittering away a good porton of the capital raised.

British Opinion re Function of Banks

I may add that these are not my personal views alone, but are the considered opinion of eminent bankers. In the course of an address given a few years ago to the Annual Conference of the British Junior Chambers of Commerce at Birmingham, Mr. C. T. A. Sadd, an Assistant General Manager of the Midland Bank, defined the functions of banks and bankers. Among other things he said: "English banking is primarily deposit banking as opposed to investment banking (as in Germany). Let me repeat the words of the old (Gilbart's definition, 'The banker receives other people's money in order to keep it safe and return it upon demand,' and it will at once be grasped that in carrying out this second duty of financing the country's trade the banker must refrain from providing permanent capital for customers. He must also avoid making advances which are in the nature of permanent mortgages.

"The strict observance of these basic principles has preserved us from the banking troubles which have been so prevalent in other countries. Great Britain is indeed the only country in which there has not been the slightest difficulty during these

years of stress, in which the banks wrote down their investment below market values in the crisis of 1931 and made full provision for bad and doubtful debts.........Shareholders should provide money required for capital expenditure such as the erection of works and buildings. It is difficult for a customer to realise that trade premises, valuable to a going concern, may be unsaleable if the business is unsuccessful, and are not in any event a suitable banking security.

" Gilbart laid down three golden rules which I will quote as more or less summarizing my points. They are as vital to-day as when written, and are as follows :—

> '(1) It is not the business of bankers to supply their customers with capital to carry on their business.
>
> '(2) It is contrary to all sound principles of banking for a banker to advance money in the form of permanent advances on dead securities.
>
> '(3) It is bad policy in a bank to make a very large permanent advance to any one customer.'

" Character, capacity and capital are a banker's major considerations in connection with a would-be borrower, and the greatest of these is character, which, inspite of allegations to the contrary, is a man's finest asset to-day. Colloquially speaking,

many loans are made 'on a man's face,' but the banker naturally insists on lending with knowledge, that is to say, he requires to know the reasons for the suggested advance, and with it the customer's position, including the means of repayment. A banker must not lend out of proportion to a customer's own resources or for risky or speculative purposes."

Bengalees and Business

It is gratifying to note that Bengalees are becoming business-minded, and a keen desire is evident everywhere to take our legitimate share in the trade and industries of the province. But desire alone will not carry us far unless we shake off our easy-going habit of extending indiscriminate patronage to any and every concern. Very often a business is started by a person who possesses at best a rudimentary knowledge of it. To be a lawyer one has to study law, to be a doctor one has to study medicine, to be an engineer one has to pursue theoretical and practical courses in engineering, but for a business career training and experience of any kind is not considered necessary. While the complexities of business are increasing, requiring accurate knowledge of economic and political conditions all over the world, we permit novices to manage our business concerns. We seem to have a genius for putting the square peg in a round hole and hope that somehow or other it will fit.

It does not, and then we bemoan that owing to bad luck or circumstances beyond our control we did not succeed. We are told that as a certain percentage of business is bound to fail we suffer no stigma if we also fail. Why should business failures be considered inevitable ? If we examine the true causes of business failures, it will be found that in most cases these were due to insufficient capital, incompetency, dishonesty, speculation and nepotism.

Why is it that Marwaris, Bhatias, Delhi-wallas and hosts of others succeed while we fail ? Do we exert ourselves as much as they do ? Do we acquire practical experience of a business before we venture on our own account ? If not, where is the substance in our oft-repeated complaint that the bread is being snatched from our mouth and that we have become aliens in our own land ? Sometimes it is insinuated that we are too honest to succeed, implying thereby that success only comes to those who excel in sharp practices. This is one of the worst delusions that we can hug. Business is not a game of beating our competitors by questionable means; if it is to endure, it must be based on truth and fairplay.

Lack of Inventions Handicap to Industry

Though great strides have been made in industrialising our country, yet it must be confessed that little or nothing has been done to promote inven-

tions which will enable us to compete successfully with our rivals. Take the instance of the textile industry. It has been established for over three quarters of a century ; can we claim any invention that has improved the quality or cheapened the cost of textile goods ? Has not Japan, entering the field half a century later, been able by her technical inventions to capture a good portion of the world's trade ?

Tariff as the Sheet Anchor of Prosperity

For tools and machinery we are hopelessly dependent on foreign countries. We desire to thrive by picking the brains of others. Our tariff policy, if I may be permitted to say so, seems to have been based on our sliding scale of inefficiency. We do not appear to realise that we may impose prohibitive duties on physical goods but we cannot smother the inventive faculties of other people. As soon as a duty is increased, scientists of other countries get busy to reduce the cost of production and thus nullify it. High tariff duties can, therefore, give us only a temporary respite during which we must put our house in order. Unless this is done our inefficiency as compared to our competitors will increase still further and we shall have to clamour for more protection.

In industrially advanced countries internal competition tends to lower price, but in a static country like India, where in certain industries competition

is non-existent, high tariff duties tend to deaden our inventive faculties and we come to rely more and more on tariff as the sheet anchor of our prosperity.

Effect of Tariff in Great Britain

Even in a country like Great Britain similar tendencies are visible. Mr. Arthur Chamberlain, speaking at the annual meeting of the Tube Investments, Ltd., at Birmingham, said recently: "The seriousness of to-day's position is that our foreign competitors are everywhere obtaining their steel more cheaply than we, and are building up their general trade at our expense. Was it for this that steel trade five years ago were granted protection? I thought that protection was given them on the explicit promise that they would not exploit the home market, but put their ruined house in order and instal plants capable of making steel as cheaply as any of their foreign competitors. Has this been done?......If the price of their steel is any criterion, the answer must undoubtedly be 'No.' ......In the old days the steel trade's mistakes hurt themselves only. We could buy from the foreigners if they could not produce the goods; but that protection forces us to buy our steel at home, and steel people can, and apparently do, foist the cost of their follies on the rest of the country. Was it for this that protection was granted them?"

I have strayed somewhat from the subject matter of my lecture, and have doubtless taxed your patience. My excuse is that banking, like any other branch of economic activity, cannot be enclosed in water-tight compartments, and to understand it properly we have to take note of other activities—social, political and economic—by which it is profoundly affected. Tariff policy, industrial policy, exchange policy, technical inventions—in fact, any change in economic relations, have far-reaching effects on the working of banks.

Banking as a Career

Coming now to the point which is naturally uppermost in your mind, you may ask what prospect there is for our educated youngmen in the banking profession. I confess I cannot answer it off-hand, for success in banking as in any other profession depends on many other factors besides academic qualifications. In banking, as in other walks of life, prospect depends on honesty, integrity, capacity for hard work and, above all, on initiative. Vague ambition without the requisite effort, dissatisfaction with a job one cannot perform accurately and expeditiously—these are not the qualities which make for success in life.

Warnings of the Governor, Reserve Bank of India

I have tried to impress upon you the fact that banking, as an eminent banker said the other day,

is decidedly not a business for small capitalists. In this connection I can do no better than quote from the speech of Sir James Taylor, Governor of the Reserve Bank of India, delivered at the annual meeting of the Reserve Bank recently held in Madras. Coming from such authoritative quarters I hope his warnings about small banks and their undesirable features should open their eyes to dangers ahead and prompt them to pull the brake before it is too late.

He said : " In the first place there are too many small banking institutions in India working with inadequate capital and reserves. These small banks suffer from many handicaps. As a rule they have to offer excessively high rates of interest in order to attract deposits, with the result that they have often to go in for risky business. In order to attract such deposits, also, some of these banks, inspite of their small size, open branches not only in their own provinces but also in distant places in other presidencies. Small banks have doubtless a useful place in society provided they circumscribe their activities to a small area and serve the needs of small scale industries and agriculturists.

" When, however, they extend their ramifications too far, they must inevitably labour under the difficulties attendant on small scale institutions, such as the competition of the bigger banks, their inability to employ an equally well-qualified staff conversant with modern methods of banking, or

to spread their risks. They are the most vulnerable points in our banking system which become exposed when there is the slightest shock to our credit structure."

Prospect in Banking

It may sound paradoxical, when unemployment is in everyone's lip, that there is a real dearth of suitable men who may be depended upon to shoulder the increasing responsibilities of conducting modern banks.

Possibly the right type of men has not been attracted to the banking profession on account of long hours of work, meagre prospect and poor pay. Even though the present outlook of banking as a profession is not encouraging, yet I am convinced that the future is bright for those who will seriously take up a banking career. But it should be clearly understood that before one can rise to positions of responsibilities, one will have thoroughly to master the details which necessarily take time. In addition, those who aspire to occupy positions of responsibility must also keep themselves fully posted in political and financial matters. As a matter of fact throughout our life we shall have to remain humble students constantly enlarging our stock of knowledge and deeply pondering over problems with which we are intimately concerned.

Conclusion

It sounds banal, but nevertheless true, that prospect in any sphere of life depends on what you create for yourselves. If you expect that others will churn the milk so that you may enjoy the cream, you are very much mistaken. Be self-reliant, be strenuous and do not give way to despair. Keep steadily to your aim and you will surely achieve success. I will conclude with the words of a great teacher uttered thousands of years ago : " Be ye lamps unto yourselves, and do not rely on external help. Hold fast to the truth as a lamp. Seek salvation alone in the truth. Look not for assistance to any one besides yourselves."

INSURANCE

By A. C. Sen

Empire of India Life Assurance Co., Ltd.

I am extremely thankful to the Appointments and Information Board of the Calcutta University, and particularly to its distinguished Chairman, and our erstwhile illustrious Vice-Chancellor, Dr. Syamaprasad Mookerjee, for giving me this opportunity of addressing you on a subject, which is very dear to my heart, *viz.*, insurance and the scope it offers for a career in life. I felt greatly honoured by this invitation. But it was not without some trepidation on my part that I ventured to come within the precincts of this great seat of learning to relate to you my experience of one particular sphere of our humdrum work-a-day world. What prevailed upon me to come here to-day was the thought that if my discourse would in any way assist my young friends in choosing an avocation in life, I will have done something, however little, in helping to solve a problem which has been occasioning grave anxiety as much to the Government as to all of us—I mean the problem of unemployment among our educated youngmen.

I am very happy indeed to be able to speak on the subject of insurance. For it is insurance which

has given me my business career, and has enabled me to achieve the little success that I have gained in life. And what I know of insurance is the result of my long association with an insurance organisation, which ranks amongst the foremost Indian concerns of the day. Like so many other institutions, the Company, which I have the privilege to represent, was started on a very modest scale. Commencing its business with a paltry capital of about Rs. $\frac{1}{2}$ lakh, it has, by dint of honest and efficient dealings with the public and sound management, accumulated to-day a fabulous insurance fund of over Rs. 5 crores. Its average new annual business during the first quinquennium hardly exceeded Rs. 12 lakhs. But so soundly has the institution developed that the Company was able to write an average new annual business of over a crore and 60 lakhs during the last quinquennium. This progress, however, is in keeping with the advance made by many other Indian companies, including a few sponsored in Bengal, and testifies to the phenomenal growth of Indian insurance business during the last few decades. I will not take your time with the details of my reminiscences for the last four decades—my experiences of the various trials and tribulations and my personal efforts and contributions in building up a big institution from a very small beginning. I will only relate to you to-day the opportunities of employment in the insurance business, and some of the conditions

necessary for attaining success. And if these experiences of an old man, who is at the threshold of his 70th year, will ever be of any use to you in shaping your future course of life, I shall consider myself very fortunate indeed.

No sooner has the University realised the necessity of diverting the attention of the students and youths of Bengal towards commercial careers than they introduced "The Appointments and Information Board" to take effective steps in the matter. Undoubtedly these *Career Lectures* dealing with various problems connected with Commercial, Industrial and Agricultural developments of the province should place very useful information before our youngmen. Very often our views are clarified by interchange of ideas. These lectures will at least help to infuse a business-mindedness amongst our youngmen and remove the false notion that service is preferable to a career in Trade and Commerce. Recently Bengalees have evinced a keen desire to take more and more to commercial occupations. But progress has been checked at every step for want of proper knowledge, commercial education or sufficient capital or banking facilities. All the same I am optimistic about ultimate success. The political salvation of the nation also depends in a very real sense on its economic development. For, a nation of starving and needy millions can hardly fight for freedom consistently and determinedly.

Brief History of Insurance

Before I proceed to discuss the real aspects of to-day's discourse, it is perhaps necessary that I should tell my young friends something about the history of Insurance business. Generally, Insurance is a contract according to which a company, in consideration of payment of a paltry sum of money called premium, is liable to indemnify the insured or his successor against pecuniary loss that may occur by death, illness, accident, unemployment, fire, burglary, shipwreck and similar elements of uncertainty to which a human being is liable. It is based on the co-operative principle to cover a mishap that may happen to any one of the contributing members—the necessary fund being raised from among all the assured for the benefit of all concerned. By the very nature of the basic principles of this business it stands for all—it obtains help from those who are in a position to help and brings succour to others who are in need of such assistance. It is perhaps the only business which combines social service with suitable means of livelihood.

There are various branches of Insurance business, the main divisions of which are Life, Fire, Marine, and Accident. I would not like to go deep into the origin and history of Insurance. I will only mention that the germ of Insurance originated as far back as 3 centuries prior to the Christian era,

from the motive of protecting import and export business, loss of lives of merchants and captains of merchantmen as well as of ships from brigandage and perils of the seas off Babylon. In England too, even during the time of Anglo-Saxons, similar necessity was felt and Guilds were formed for the same purpose. Thus the germ of Insurance, which originated in meeting the perils of the seas, was gradually extended, with the expansion of civilization, to cover loss not only marine but of human life and every kind of property that comes to a man's possession, against nature's vicissitudes. Since the collection of data and tabulation of Mortality Charts from the Birth and Death Registers and Investment Returns in Europe over a century and a half ago and the introduction of Actuarial Science and establishment of Institutes of Actuaries in London and some other Western cities in the middle of the nineteenth century, the progress of Life Insurance business in the Western countries has been almost phenomenal.

Inspite of the great advancement made in India in religion, art and philosophy and even political economy many centuries before the European countries came out of their mediæval ignorance, Insurance in its present sense was altogether unknown in India. The then law of the Indian society, joint family system or family co-operation practically served the purpose of Life Insurance to a great extent. But with the gradual decadence

of time circumstances changed and the foundation of Indian society got a rude shock and the old established ways gave place to new ideals and Life Assurance came to be introduced among the educated classes in India with the advent of British rule. With Industrial progress in India, Fire and Marine Insurance is also making headway in Bengal, although its progress is still slow.

Insurance in India

About sixty years back a few English companies monopolised whatever insurance business was available among the Indians, and there is no denying the fact that these companies paved the way for the great progress that is noticeable now in the field of Life Insurance in India. Although the foreign Life companies are not now making so much headway among the Indian Insurance public, the credit for giving an impetus to Life Insurance in India must be given to them. They still retain almost a monopoly of other kinds of Insurance, such as Marine, Fire, Accident, Fidelity, etc.

It is less than a century that the first Insurance company was registered in India and also a few Pension Funds for the exclusive benefit of British officers and Christian missionaries and the widows of Government servants. The credit of starting the first Indian company open to the general public irrespective of colour and creed, goes to "Bombay Mutual" which was established in 1871.

It was followed by " Oriental " and " Empire " in Bombay, "Bharat" in Lahore, and "United India" in Madras. Although Bengal was a few years late in following suit, it has more than made up the lag by the highly successful ' push ' its early companies—Hindusthan Co-operative and National Insurance—have made. There are many good and indifferent companies since established in Bengal some of which are working their way up, and will, I hope, eventually achieve as much success as the older companies have done.

But I must admit that too many Insurance companies have been started in India by people without sufficient knowledge and experience of the peculiarities and intricacies of insurance business, with the result that there is considerable unhealthy competition leading to an unusually high expense ratio. All these have compelled the Government to pass a comprehensive Insurance Act which, I believe, will improve the situation to a certain extent. But laws alone cannot remove the unhealthy features of insurance or any other business. It is imperative that those who are at the helm of affairs bear in mind that they are the trustees of the Insurance funds and insist upon economy and sound investment. These remarks, however, are not intended to discourage new ventures. The companies of long standing to-day had to be started at one time or another. What is wanted is that the foundation should be

strong and that the guiding principles should be scientific.

The great progress made by Indian Insurance Companies in recent years will be evident from the following particulars :—

Year.	No. of Co.s	Ins. Business written.	Total business in force.	Total Income.	Life Fund.
1930	68	16·5 crores	89 crores	5·40 crores	20·5 crores
1933	110	24·8 ,,	119 ,,	8·15 ,,	28·7 ,,
1936	165	37·8 ,,	175 ,,	11·35 ,,	40·2 ,,

Out of the above, my estimate of Bengal's share will be about one-third under all the heads.

But inspite of this development large fields are still remaining unexplored and, I believe, I can say without any fear of contradiction, that only a fraction of the insuring population has been touched as yet. From the total number of policies in force it appears that out of every 300 people in India only one person is insured, and that too mainly amongst educated middle classes ; whereas in America out of every 3, 2 persons hold insurance cover on their lives. In Great Britain, although the percentage is not as high as in America, it is ever so much better than that of India.

Coming to general Insurance business, such as Fire, Marine, etc., the bulk of the business is still in the hands of non-Indian concerns. During the year 1936 the total premium income from non-life business in India amounted to Rs. $2\frac{3}{4}$ crores, of

which the share of Indian companies was only Rs. $\frac{3}{4}$ crore. I believe, there is tremendous scope for the development of non-life business in India. Very few people among us hold Fire Insurance policies against their houses, and even among traders only a small percentage of the people holds such covers. In Marine Insurance, there is very good scope for immediate development of Insurance businsss in connection with motor boats and country-boats, while in regard to personal accidents, I think the scope is practically unlimited. If we take into consideration other kinds of business, such as Burglary Insurance, Hailstorms and Cattle Insurance, etc., I think I can safely declare that we have still very great possibilities in these lines.

Beneficial Aspects of Insurance

I shall now indicate some of the beneficial aspects of Insurance business and later on give some idea as to how Insurance can give suitable careers to a very large number of our youngmen. The influence of Insurance for good is impossible to exaggerate. There are also happily pointers to show that the educated people in India are gradually realising the value of Insurance ; and it is to be hoped that within the next few years, with the further spread of education, Insurance will be considered an indispensable factor in our social life. It is but natural for a man to wish that his

wife and children or those nearest and dearest to him are not left in a destitute condition after his death and also that sufficient provision is made for his own old age. Nothing but Life Insurance in a sound company gives him the security he needs in such easy form and at such small cost. Should the bread-winning member of a family fall an unfortunate victim to a fatal accident or illness at the prime of his life, nothing but the beneficent agency of Life Insurance could probably make good the loss of his earning power and help to maintain the destitute family. By means of a small premium, payable annually or periodically according to his own convenience, a person can at once create an estate which would maintain his family in comfortable circumstances in case of his premature death or, alternatively, would serve as a provision for his own old age or illness. It also provides for the education or start in life of children or marriage of daughters. Thus Insurance really solves a great social problem.

It also stimulates thrift by encouraging the habit of regularly laying by something, even though only a small amount, which would never have otherwise been saved. It is futile to think that a person might himself lay by the sum which he would pay to an Insurance company, but this is hardly done in practice. But even if he were to do this, only the paltry sum laid by and the nominal interest that might accrue thereon would be

available in case of early death instead of a large sum as is obtained, even after payment of a single premium, by taking a life insurance policy. If each member of our society would take a life insurance policy according to his means, on the consideration that the small premium he has to pay is an item of necessary day-to-day expenditure, his family would surely be benefited enormously by becoming to a certain extent economically independent. During the last 40 years I have paid through my own office alone a sum of over three crores of rupees as claim money throughout Bengal and neighbouring sister provinces. And I know only too well how this sum has saved many a family from utter ruin, helped countless children to receive adequate education and brought a ray of hope to many homes when utter darkness and gloom seemed to envelop them. In view of the valuable boons which life insurance bestows on its devotees, it is extremely gratifying to note that the country has gradually awakened to a realisation of the utility and humanitarian results of life insurance.

Unemployment and Career in Insurance

I will now say a few words about the contribution made by the business of insurance towards alleviating the tragic distress which obtains among the educated middle classes. I refer to the

problem of unemployment among this section of the population, and to its ugly social and political consequences. Our youngmen have been unusually hard hit by the narrowing, for various reasons, of those spheres of Government and other services, as well as various professions, which for over a century were almost their exclusive preserves. And the situation has been further aggravated by the fact that there has not been a commensurate development in the country of trade, commerce and industry to absorb our unemployed youth. It is, therefore, imperative that we should all pool our resources and exercise our minds to explore every avenue of possible employment, so that the clouds of gloom and despondency which now ominously hang over our educated youngmen may be lifted. It is my purpose to-day to indicate what insurance can do in this direction.

To those who complain of lack of capital to start business, the Insurance Agency business can be pointed out as an ideal occupation. For success in the line, no long and intensive training or heavy expenses are required as in the legal, medical, engineering and similar other professions, nor is there any painful period of waiting, as in many other lines, even after being fully qualified. An Insurance Agent starts earning from the very first day he puts in his first case. The larger the sums assured through his influence, the larger is his immediate income, while the recurring income

from the renewal commission in regard to life business swells his account and forms the nucleus of a pension in old age. Any person with moderate education, perseverance, self-confidence and pleasing manners can within a few years achieve good success and secure for himself an independent position. If it is contended that there is competition, it may be said that the field for expansion of the business is also unlimited. If millions have already profited by insurance, there are millions more who can still do the same.

I have amongst my own workers in the Province at least one hundred persons whose annual income from Life Insurance varies between Rs. 1,500 to Rs. 5,000. A few exceptionally clever agents have also succeeded in pushing up their earning to about Rs. 10,000. Even many part-time workers have by slow stages built up an income of about Rs. 1,000 a year ; for the commission on renewal premiums swells the income year after year. There are many other companies, life or general, who, I presume, will have the same, or even a better tale to relate.

Insurance companies are always eager to obtain the services of capable and efficient men. And the opportunities to steadily rise to more responsible and remunerative position are very large now-a-days. There is hardly any other profession which is so honourable, so potent of good, not only to the individual but also to the community at large.

Further, no capital is required, no risks have to be undertaken and there is no waiting period. And to crown all, it is a vocation with a social purpose, *viz.*, the education of the public in the virtues of thrift, foresight, economic independence and self-respect.

I have prefaced my remarks regarding a suitable career in the Insurance line with a picture about the prospects of an agent, because I feel that this is the line which can be very easily taken up by our youngmen without any capital and also because of the fact that in many cases it is necessary that Insurance Agency should be the starting point in the ladder which one has to climb to reach to yet higher and more responsible occupations. There are still other avenues in the Insurance world, whose full exploitation will, I hope, provide many of our youngmen with employment. I may enumerate the more important among these.

First, there is the demand for executives, assistants and clerks to run insurance offices. Youngmen with education, energy and vision who are capable of filling executive positions may always count on securing a good berth in the insurance business. To rise to the top, however, it is generally necessary to begin at the bottom. It is only in exceptional cases that a person can aspire to reach the top at the very start. If, therefore, a person has to start life as a clerk, or an assistant or a mere agent in the insurance business,

he should not feel discouraged, but should work hard, gather experience, extend his knowledge by diligent study. If he does all this, he may be sure that he will slowly, but nevertheless surely, rise in life. Unfortunately, our youngmen are very often satisfied with the work they are able to obtain and do not exert to qualify themselves to improve their position. A sort of 'divine discontent' would, therefore, be a helpful trait in the youngmen's character.

There is another very important occupation in the insurance line, *viz.*, that of the expert, who, in our parlance, is known as the Actuary. He is the friend, philosopher and guide of insurance business. He is the person to whom the insurance company looks up for advice with a view to steering clear of the many pitfalls which beset the field of insurance business. One has to undergo a rigorous test to become a qualified Actuary. Nobody without special aptitude in mathematics and statistics should go in to qualify as an Actuary. The examination is very stiff and it takes about six years to qualify as a full-fledged Actuary. But once a person has qualified as such, he is sure to obtain a very decent employment. The scope of employment in this line is still wide, and the prospects bright.

Life Insurance provides yet another professional class with ample opportunities for earning decent income—I refer to the medical profession. Not

only do insurance companies retain the services of doctors on the permanent staff as their medical officers and advisers, but many doctors all over the country earn good income by examining proponents for insurance.

I think I have said enough to demonstrate that insurance offers ample opportunities for employment to our youngmen. It is difficult to make an estimate of the number of people actually employed in or earning their living by direct or indirect association with the insurance business. But I think I shall not be far wrong if I place the figure at about a quarter of a lac in Bengal. Since Indian Insurance is still in its infancy, I am sure that, with its future progress and expansion, even still wider opportunities will be opened up.

I have no doubt that, to a man of ability and character, the prospects in the Insurance line are bright. The beginners may have to undergo a considerable amount of drudgery to adapt themselves more fully to the line they have chosen as their vocation. But this is unavoidable in almost every sphere of life. The chances, however, of rising to the top is so great in the insurance business that the novice should patiently bear with the period of initial apprenticeship.

I do not think I should take more of your time, but before I sit down I would repeat that Insurance line really offers unlimited scope for careers to our educated youngmen. A very large

number of them has already been absorbed in various Head and Branch offices located in Calcutta. Some of such qualifications as are required for success in any other line of business, *viz.*, good manners, willingness to serve, keen interest in work, common sense, determination, punctuality, honesty of purpose, cool self-confidence and desire for advancement and self-improvement, will ensure success in this line too. Above all, every young-man must have ambition and grit to get on. He should not forget that where there is a will there is a way.

SHARE-MARKET

By J. M. Dutt

President, Calcutta Stock Exchange Association, Ltd.

I thank Dr. Syamaprasad Mookerjee for having given me this opportunity to meet you here today, and to lay before you my suggestions regarding a career in the Stock Exchange.

If I do not bore you by repeating what may be a matter of common knowledge amongst my audience today, I may tell you very briefly what a Stock Exchange is and what its uses are. For purchasing an article of hardware you usually go to Strand Road, for anything in piecegoods you go to Burra Bazar, for shoes you go to College Street Market; similarly if you have to purchase or sell Government Papers or Shares of any Limited Company you have to go to the Stock Exchange or Share Market. The members of the Stock Exchange help the buyers or sellers of any of these things for their brokerage. This is the bedrock of this trade. Government Securities increased by leaps and bounds since the $3\frac{1}{2}$ per cent days and are now varied in character and dimension. Municipalities and Trusts also have followed suit and obtained and are still periodically obtaining loans from public on issue of debentures. All these go to form the gilt-edged class which is one of the principal commodities

dealt in. Since the growth of the idea of formation of Limited Companies over a century ago, various industrial and public utility companies have come into being every year and are swelling the list. As you know big industries of modern type and dimension can hardly be brought into being without subscription from a very wide mass of shareholders, and the Stock Exchange has to be utilised by the promoters of Companies for the purpose of placing the shares before the Public and for attracting capital. This is one of the greatest fields of work for the Stock-brokers. Of course some prominent firms of the Stock Exchange sometimes underwrite shares of a new Company, and thereby guarantee subscription of certain agreed number of shares to the Company for certain commission which they get. Briefly speaking, therefore, it is selling and buying of shares of established companies and Government Securities and debentures, pushing shares of newly floated companies and underwriting, which are principally the three ways by which the members of the Stock Exchange can serve the public and earn their living.

At the outset, I want to deal with one point which is more socio-psychological than commercial. I am not going to prate copy-book maxims of which we have had quite a plethora since the dawn of our knowledge. All I say is that you would do well to changs your " Sense of Values,"

to assign a dignified place to " Business Career "—be it broking, peddling or ironmongering—in your social classification of respectability. This social gradation is done more in the inmost recesses of a Bengalee household than in a Bachelors' club. There in that holy sanctuary where our cradles were rocked, you will find the presiding goddesses our mother looking askance at a budding business-man when compared even with a paltry service-holder. From our very cradles we have imbibed this idea of " service-worship " and it is hard to shake it off. I do not disparage the life of a service-holder—it has got its points, fixed and increasing income, risk-free life, reasonably fixed hours and all that, if you get a good billet. At the same time I would ask you not to underplace a " Business Career " in the social hierarchy. If any of you do take to " Business Career," I want you to love it with all the ardent zeal of youth—not only to love it, but respect it. It won't do if your attempts at business are pusillanimous and jejune ; it has got to be full-blooded, whole-hearted, and respectful.

If in your mind business occupies a lesser place than service, your idea would be like this : " Well, let me ' have a go ' at stock-broking for three or six months and then, of course, if I don't like it I can always try for a suitable job, or even while attending share-market I can always be on the look-out for a job." This won't do,

as this is more often than not the undoing of a Bengalee youth's business career. Mentally you have got to 'burn your boat behind,' and hitch your waggon to one star alone, a star which you worship and respect.

Now, I want to get down to my subject and tell you as much as possible about it within my time limit. This useful scheme of Career-Lectures has been inaugurated, I believe, with the idea of getting businessmen of experience to lay before you the tricks and implications of their respective trades not so much to enable you to answer examination questions as to help you to choose for yourselves your life's career in a particular line of trade according to your own aptitude and resources. You must have heard about jute, coal and many other subjects, and today I am going to tell you about the share-market and its operations. The operative aspect of the trade would be primarily my theme. I take it for granted that the academic aspect of the trade is well-known to you. I safely assume that you know what a public limited company is and what its shares are, and how these are transferred by means of a common form of Transfer Deed duly stamped and executed. I further assume that you know what Government Promissory Notes are like and how, broadly speaking, these are endorsed over to a buyer. Equipped with all such information let me assume a young University man out of this my audience

makes up his mind to go in for share-broking and asks me what is he to do, and how is he to get at it; and here are my answers.

1. Go to No. 7 Lyons Range—that is the Stock Exchange Building, and if you are not acquainted with any one of the broking fraternity, ask the Secretary, at his office, for a list of members of the Association, and ask him to help you to get you a recommendation for a pass for the Northern Enclosure. Though that does not make you a member of the Association, yet it would give you an opportunity to have a glimpse of how shares and securities are sold and purchased, and what language is used in the process of bargain, In short you try to absorb all the useful points and get to know as many people in the trade as possible. If you are a good mixer you can make some friends too even before putting any business in their way. Let me tell you also that acquaintance and knowledge about the temperament and status of the members of the Association and their friendship and good-will and confidence once gained will amount to more than half the battle won. You begin to make the acquaintance while you are in the Northern Enclosure and get closer to the members after you become a member of the Association and get entry into the Hall either as an Assistant or a Partner of a Member firm. This stage of membership should come later in your life, *i.e.*, after you have gathered some

experience from the Northern Enclosure. At your first visit to the Stock Exchange you are likely to find lots of men lining up the foot-paths around the Building and congregating in masses near the gates. I would do well to warn you not to be in their midst for long, as thereby you are liable to fall a prey to a passing constable who may haul you up under the Traffic rules.

I must mention that at this initial stage while you are attending the Northern Enclosure, you should be looking for parties for the purpose of securing orders. This is real broking, and is an *art* in itself. You have to create a field for yourself as it is no use trying to poach into others' preserve. More specifically the thing is this: Supposing you come to know that a brother-broker calls on Mr. A who is a rich party and deals in shares and securities and entrusts his business exclusively to that broker ; in that case, until asked, you should not approach Mr. A and seek for business. But, of course, in public institutions such as Banks or Insurance Companies which often have shares and securities to sell and buy, they are not usually considered to be any particular broker's preserve—in any such public institution if you are allowed to call you can do so by all means.

Now, as to the art of calling and talking with parties, though your sole aim may be to induce them to buy or sell through you, you should be

amiable and dignified, and should on no account hold out recklessly rosy views of profits as nobody can always correctly prognose the rise and fall in the Share Market. Mind you, your parties are always likely to ask you about your views, and you should tell them what you honestly feel without being unduly opinionative. Clients' confidence is always the greatest asset of a professional man. In talking about interest-bearing securities you should tell them their respective comparative yields, show them by comparison the difference between the Gilt-edged Securities and Debentures or Preference Shares in sound and well-reputed companies, and point out to them the possibilities of increased income if capital locked in fixed deposit be invested in other securities equally safe. For your information let me tell you that comprehensive charts and schedules of all sorts of securities are lucidly given in the Official Year Book published by the Stock Exchange and stocked in almost all the Libraries.

I have given you an idea of talking about securities. Now I am telling you broadly how and what to say about shares. Supposing a party asks you your views about Howrah Jute Shares, you can tell him that Jute is the main industry of Bengal and Howrahs are one of the best. Jute industry had been a sick child so long on account of the squabble amongst the mill-owners regarding the

working-hours ; now that that has been settled and on the top of that large quantities of war-bags have been ordered for there should be no fear of over-production or surplus stock and the industry should make a good profit. You should also show your man the progress report of the Company and quote the rates at which dividends have been declared, and what is the present average yield in view of the rate of Dividend. All these, in respect of all companies of consequence in the Indian Market, are to be found in the Year Book I have already referred to. In short, you must be in touch not only with the International affairs of the day, but you should be well up in statistics of all such companies which are dealt with frequently ; you should also be conversant with the latest trade conditions in this country to make ideas of Bulls or Bears points. I should tell you that, of the two words Bulls and Bears, Bulls means the optimistic buyers and Bears means the pessimistic sellers.

I shall tell you here that besides the international political conditions, the local trade incidents and the prospects of a particular Company, there are many other factors which go to determine the tendency of the market, such as paucity of available shares, over-sold or over-bought shares, and advice from Wall Street, London and Bombay. No place is too far today with the help of Radios and Telephones. Even distant America is within

your easy reach. The vagaries of the Wall Street Stock Exchange or London Stock Exchange are flashed across space through Radios and Telephones, and affects the local market considerably. It is a highly specialised trade now having liaison with the whole world, and not governed by local consumption and demand only as it happened to be long before. Therefore, I repeat that you should have a veritable mint of information at your disposal to advise your clients and for your own guidance.

Now that I am on the subject of how to tackle a client I cannot leave it before I tell you that you must on no account advise over-trading to your client and lead him beyond his depth. Being in the midst of speculators myself, I tell you frankly that I have a holy dread of speculation and always try to dissuade the parties who seek my advice not to indulge in speculation ; but I must tell you at the same time that if you have to refuse commission from all excepting genuine investors your trade will be very meagre indeed. Besides, the two ideas coalesce so much that an investor of today is a speculator of tomorrow. After all, the subject of tackling a client depends a good deal on a broker's personal ability, and the fineries of trade talk are matters of experience, and cannot all be made the subject-matter of this my discourse. I, therefore, pass on to the next point.

2. *How to become a member of the Stock Exchange*

So long the young gentleman of my imagination had been rubbing shoulders both with members and non-members in the Northern Enclosure. Now that he has learned to tackle a party and has created a field for himself let him become a member of the Stock Exchange—I mean, an inside member who will be allowed to go into the Hall. One can get into the Hall in two ways, or rather three ways. Firstly, by purchasing a share in the Association and thereby becoming an independent member. Secondly, by becoming a partner of an existing member firm, and thirdly and lastly, by becoming an assistant in a member firm.

To become an independent member one has to purchase a share in the Association. This is somewhat difficult and expensive, inasmuch as no new shares are issued by the Association for the mere asking. One desirous of purchasing a share will have to be on the look-out for a chance when either the Committee offers to sell a forfeited share of a pre-existing member or to get an existing member who wants to go out of the trade to sell his share. The present value of a share is round about Rs. 24,000. After a share is purchased the purchaser will have to apply before the Committee of the Association for election as

an independent member, and if elected, will have to pay Rs. 5,000 as Entrance Fee. So, that takes one to the neighbourhood of Rs. 30,000. Besides the outlay of this lump sum a member will have to pay subscription at the rate of Rs. 4 per month to use the Hall and the attendant privileges thereof. To get in as a partner of an existing firm the Association will only demand of you an Entrance Fee of Rs. 500 and the usual subscription. But, of course, you will have to be careful as to what firm you are becoming a partner of, and whether the firm is saddled with any liabilities or not and what is its status and reputation in the market. In becoming an assistant of a particular firm one has to apply for election, and if elected the prescribed entrance fee ranging from Rs. 500 to Rs. 2,000 has to be paid. The rules of election of all these categories of membership are given in the Bye-laws and Articles of Association which are all set out in the Official Year Book. Therefore, I once again refer you to the Year Book for the necessary information and pass on to the next point.

3. *Rules of Transaction*

Now that the gentleman of my imagination is a full-fledged member of the Association, let me imagine that he has got an order to sell 500 Kamarhatty from one of his clients. This is a big business. The young gentleman rushes into the

Hall in great elation, but if he for once gives it out to the members, who are all abnormally acute, that he has to sell 500 Kamarhatty, he would surely make a mess of his whole business. The market will be manipulated by the prospective purchaser in such a fashion that he would not be able to sell his ware at anywhere near the best rate. When he comes into the Hall let him only say the name of the share "Kamarhatty" and nothing more. When he comes across parties who are interested, let him tactfully find out as to what respective rates they are prepared to buy or sell and then do the deal as best as he can. This knack again, I must say, can be generated only by experience. Now that the deal is done, the next stage is to send out contract memos under the rules and practices of the Association which are all to be found in the Year Book. On the third day of the contract, in the usual course delivery is to be effected. Deliveries are usually made in the market through Darwans and Bearers. The selling member will have to prepare a bill at the rate transacted adding thereto the value of the stamps and send the shares along with the Transfer Deed and the bill tacked therewith to the office of the buyer through a Darwan within the Delivery Hours, namely, 4 p.m. on each working day. As to what points are to be covered in making a bill and what features of a Transfer Deed and Scrip are essential and go to make a good delivery and what

makes a delivery bad and a bill incomplete are matters set out in the Year Book. I must tell you that this process of delivery in vogue in the Stock Exchange is a fairly complicated process and has to be learnt from practice and experience. You will find deliveries rushing in and shares with bills literally thrown on your office table by madly excited Darwans at the nick of time leaving you not even one whole minute to take off your seller's bill from the lot and attach thereto your own and despatch it on to your buyer's office. Within the twinkling of an eye you have got to check up the shares, ascertain from the numbers on the scrip as to whether it is 100 or 200 or 500; whether the numbers on the scrip and on the bill tally or not; whether the name of the registered holder letter by letter tallies within the seller's signature on the Transfer Deed; whether there is any uninitialled alteration on the Transfer Deed or not; whether the Deed is adequately stamped or not; then again whether the stamps affixed are acid washed, torn or otherwise bad or not. If you once miss in your hurry to detect any of such defects as I have mentioned you get into difficulties. You should keep your own delivery bill all filled up and ready leaving only the numbers of the shares blank, so as to enable you to despatch the shares to your buyers in the minimum of time only after filling up the numbers of the scrips in your bill.

Of course, if you have failed in your hurry to detect any of the defects in the Bill, Transfer Deed or Scrip, your buyer may find it out and return the delivery to you with a remark regarding the defect noticed, on your bill. What you would then have to do is to note down the very same remark on your seller's bill and return the shares to your sellers within "5 o'clock." By what I have said regarding deliveries of shares I have only touched the barest fringe of the problem, as a detailed statement on the points can hardly be made within the time at my disposal today. After delivery, of course, comes the question of payment. As between members payments are always made by cheques. According to the rules payments have to be made by 6 P.M. if the shares have been accepted. As regards deliveries of Government Securities there is a different time scale, all to be found in the bye-laws set out in the Year Book. Side by side with this point arises the question of Banking arrangements which I want to get on to next.

4. *Banking Arrangements*

It may be the prevalent idea amongst people who are not in the know that a huge quantity of money is always indispensable for anybody who wants to go into this trade. Of course, it may be so for a jobber, but so far as a broker is concerned a big bank balance is not always indispensable.

I should make it clear as to what I mean by a jobber as distinguished from a broker. When you go to purchase a lot of shares not on account of one of your parties but for yourself on the off-chance of disposing of the same at a higher rate the business is jobbing and not broking. A jobber, therefore, should be in a position to pay off and take up the shares purchased and hold them for better rates. This, however, is one aspect of jobbing, as it is quite within the province of jobbers to carry shares on somebody else's behalf. In the London Stock Exchange, of course, those members who do jobbing make that their exclusive trade because they do not broke. Here in Calcutta there is no such division amongst the members of our Association. A member during one working day may be 10 times a jobber and 20 times a broker.

Then as for the Banking arrangements probably you may have all heard that usually the local Banks make a substantial advance on approved securities. I would tell you later what is the criterion of approved securities. Now, supposing you have only Rs. 2,000 to your credit in the Bank, you receive delivery of certain shares in the afternoon at 4 P.M. for which you have to pay by 6 o'clock a cheque for Rs. 4,000 ; the usual means for meeting the situation is—unless of course you have to deliver those identical shares to somebody else and receive payment against that delivery

—to deposit those shares in your Bank next morning against your Overdraft a/c and instruct the Bank to pass your cheque for Rs. 4,000 which you had issued overnight to your seller. The Bank would readily do that if the shares in question happen to belong to the approved class. In doing this the Bank utilises your credit for Rs. 2,000 and makes an advance of a further Rs. 2,000 from its coffers on your account charging you a small rate of interest ranging from *three* to *five* per cent. Then again supposing you happen to sell those very shares to a party on the next day you should not find any difficulty in effecting delivery although the shares are hypothecated with the Bank. All you need do is to instruct your Bankers to effect delivery to your buyer, who, let me presume, is a member of the Stock Exchange, at a certain rate and collect the proceeds from that buyer and to put it to your credit. The Bank will readily do it. So you see you can complete a transaction involving Rs. 4,000 with only Rs. 2,000 to your credit. There is yet another way of obtaining loans on shares and securities. The Bank usually insists on keeping a comparatively bigger margin at the time of making advances, but there are some firms in the Association who make it their business to advance money on security of shares. Such banking firms usually do not insist on as large a margin as the Banks do. If, for instance, the Banks make you

an advance of only 30 per cent. of the current value of the shares, the banking firms would not hesitate to advance 50 per ccnt. or even more. But their interest is comparatively higher. There are yet other methods which come under the caption of Banking.

It is one of the practices amongst the members of the Stock Exchange to get their own purchases paid for and taken up by another banker-member on their behalf and to hold the same on their account on arrangements regarding margin. *Sutta* is another method of loan of shares with which you can fulfil your engagements with a buyer of yours. In short, therefore, it is not correct to suppose that unless and until you have a big bank balance you cannot go in for this business. I do not want you to be scared away on account of this mistaken idea. Of course, money can always be used and the bigger your credit the better your advantage. I may mention here that clever and judicious banking arrangements should be considered to be a keystone of your business structure. Risky manipulations and taking narrow chances would inevitably land a member into difficulties. It is impossible for me to indicate to you all the pitfalls and risks which have to be avoided and all the 'rapids' which have to be negotiated, in the short compass of this discourse. Besides these are matters again for experience and close study of the methods in vogue in this trade. I now pass

on to tell you what makes a particular security an approved security in the eyes of the local Banks.

5. *Official Quotations*

While in the Stock Exchange you will find that by the side of the Hall where transactions in shares and securities are carried on by members there is a room which is called the Quotations Department of the Association. Facing the Hall there are several movable wooden panels the replica of black-boards of schools and colleges and a small slot beneath these black-boards. When a member sells or buys some shares or securities he ought to tear off a page from his job book and write thereon the rates at which the transactions were done both *cum-* and *ex-*brokerage and put it in the slot I have mentioned. Through the slot the paper reaches the officers of the Department sitting inside the room who chalk up the quotation on the black wooden panels displaying the same to the members at large. This is called marking the quotations. These are really the records of actual transactions.

There are several panels, one recording transactions in Government Securities, another of Jute shares, a third one of Cotton, and so on. The Department inside the room jots down all the quotations and furnishes two lists to the Press Agents daily, one at about 2 P.M. and another

at the end of the day. These are the quotations which you find published in the local newspapers. The Association also daily publishes an Official Report containing all the quotations of shares and securities dealt with. These Official Quotations are subscribed for by the Banks. The subscription rate is Rs. 6 per annum for spot delivery and Rs. 16 per annum for mofussil subscribers inclusive of postage. This Official Quotatton is usually made the basis by the Banks for fixing the rates of advance in respect of particular shares and securities to their constituents. While on the subject I must tell you the other sphere of activity of the Quotations Department of the Stock Exchange. If you have a look at the Official Quotations of the Stock Exchange you will find that names of about 700 companies are embodied in the list. There are many other public limited companies of good standing which are not in the list. The reason for this omission is that the Company wanting its share to be quoted in the Official List has got to apply either directly or through a member-broker to the Secretary for inclusion of its name in the Official List and for permission to have dealings recorded. The Secretary in his turn passes on this application to the Quotations Sub-Committee of the Association for necessary orders. Certain documents and papers such as the Prospectus, Memorandum and Articles of Association and all the Reports and

Balance Sheets up to the date of application have also to be filed. On receipt of these papers the Quotations Sub-Committee considers the application principally from the point of view as to whether sufficient public interest has been evoked by the Company's shares or not. The Quotations Sub-Committee then, if it is thought fit, allows dealings in the shares of the particular company to be recorded and the name of the Company to be incorporated in the Official Quotations. This gives a status to the Company's shares in the eyes of the Banks. I must mention again that what I have stated is only a bare outline of the scope and activites of the Quotations Department. Details would be lengthy. I now pass on to the next point which is brokerage.

6. *Brokerage*

In the Official Year Book you will find the schedule of brokerage clearly set out. To mention a few amongst these: On 3% and 3½% Government Securities -/1/- anna per cent of the face value and on other Government Securities -/12/- annas per cent. On Municipal and Port Trust Debentures -/4/- annas per cent. and on Joint Stock Debentures -/8/- annas per cent. On all shares of the nominal value of Rs. 75 or over, one rupee per share up to Rs. 200 consideration money ; -/2/- annas per share up to Rs. 5 consideration money ; -/4/- annas

per share up to Rs. 50 ; and above Rs. 50, -/8/- annas per share; and so on. This is, strictly speaking, the legitimate rate of income of a broker if he sticks to broking alone, and I for one would advise you earnestly not to deviate from broking and drift on to speculation. Various attempts have been made to define speculation. I am inclined to take it that you all know what it means. I would not feel easy in my mind unless I tell you how I define the idea of speculation. I had better explain the idea by an example : Supposing you have not got any order for sale or purchase of any share, you go into the market and find Howrahs rising. You feel that now it is Rs. 50 but it may go higher up. This idea makes you purchase 100 shares. Well, if the market does really go up and you get a chance of unloading do take it instead of holding out for bigger gains and get out of it all with a profit. But, if, on the other hand, the market goes the other way, you lose. Therefore, playing on chance is the real synonym of the word speculation. I dare say that your common-sense should warn you against speculation and I need not labour the point any further.

Even broking is not always trouble-free. At the first flush you may feel that 'A' has asked you to buy, and you go and buy and earn your brokerage—the risk is A's and not yours. But that is only the thin end of the wedge. If you are faulty in your estimate of A's resources and

business morals as to whether A is capable of paying for and taking delivery of the shares he has purchased from you, and the market goes against A immediately after the purchase, A would not take delivery and you as a member of the Association are saddled with the responsibility of the transaction. This is only one of the many instances of scrapes which even a broker may have to get into. Experience will teach you when you go into the trade all the " *Don'ts* " which a broker has to observe.

I would now tell you something about the general temperament of the member fraternity of our Association. Let me tell you that they are a jolly lot. High-brows are greatly disfavoured in the Hall. I have told you before that you must be a good mixer, and let me tell you again that you should always be prepared to endure jocose rags and even cuffs and laughing pats on the back which are sometimes likely to make you groggy. You know that when they are giving it to you they are all prepared to take it on the same terms without turning a hair. When the market is active and excited, you find the members huddling together forgetting all else except business; but when the market is slack you find them frolicking in the Hall rather absurdly—absurdly in view of their position, age and standing. They are a jolly lot indeed. It is not an uncommon sight to see many prominent members

all pooling together their resources to help a 'lame' one over the style. If you are the right sort you would not have a dull day to pass.

I have come to the close of my theme. I have already indicated to you the nature of the activities within the precincts of the Calcutta Stock Exchange Association. The field of a share broker need not be confined within the four walls of the Stock Exchange Building. If it be his work to look for likely parties who will favour him with some commission he would do well to extend his activities beyond the local limits of this town of Calcutta. In Mofussil where often facts are misrepresented to the unknowing public a little bit of educative propaganda and information about the respective shares and securities, about their merits and demerits and about the mode of the working of the Stock Exchange, can hardly go amiss. Thereby the budding broker would not only gain custom but would help in correcting many wrong notions about the Stock Exchange that may be prevalent in Mofussil.

The last thing I shall tell you is that if the suggestions given by me go to help even one of you to find a footing in the trade I will consider this afternoon well spent indeed.

JUTE INDUSTRY

By Jadunath Ray

Premchand Jute Mills, Limited.

When I was first requested to say something on the Jute industry, with especial reference to the scope it offers as future career for our educated youngmen, I received that request with considerable diffidence. But your insistence reminded me of what the late Sir William Duke had said at a meeting of the Royal Society of Arts (London) in 1916. He said that he had a fairly close connection with jute during a great part of his existence, having lived within sight of it when it was growing, and within scent of it when it was retting—the scent being not exactly that of the honey-suckle. If that acquaintance could embolden Sir William Duke to hazard an opinion on the industry surely I, coming from an important jute-growing district in East Bengal, where from my very boyhood I have watched the various phases of the cultivation of the fibre crop—from the ploughing of the land, the sowing of the seed and then the cutting of the crop and steeping it into water for extracting the fibre and preparing it for the market—can become bold enough to speak a few words to you. The various processes enumerated above are very arduous and some have to be done standing in water 4 or 5 feet deep. These have proved

safeguards to our industry as agriculturists in other parts of the world do not agree to perform these tedious processes, and these climatic and other conditions are also not very suitable. This intimate acquaintance with the crop from the field to the market combined with my association with the fibre as carrier and consumer induced me to accept your invitation to speak on the Jute industry as a career for our youngmen. And I shall think myself gratified if the few suggestions I shall make would help, even to a small extent, to change the present outlook of our youngmen—who now overcrowd the services and professions, because they cannot find any other outlet for their energy—to industries and thus contribute to solving the problem of unemployment in Bengal and to showing those who are earning a small pittance, which can hardly make them live above want, how they can occupy themselves more profitably.

If on any week day you will take your stand at one end of the Howrah Bridge in the morning between 9 A.M. and 10 A.M. you will witness the pitiable sight of streams of local trainpassengers hurrying to their offices where they work from 10 or 10-30 in the morning up to 5 or 6 in the evening for a very small salary of from Rs. 25 to Rs. 60 a month in most cases. They occupy the posts of clerks, etc. Among them are Matriculates, B.A.'s and M.A.'s also. Some of them would surely have adorned responsible positions in any

sphere of activity whether as educationists or lawyers or engineers or would have risen to be captains of industries provided they had opportunities or necessary backing.

The importance of jute in the economic life of Bengal as also in that of parts of Assam and Bihar cannot be over-estimated. Its importance in times of peace as also in times of war is enormous. No wonder it is called the golden fibre—not because of its colour but because of the money it brings to the country. To understand its importance in times of war we have only to remember that sand-bags are almost as essential as actual munitions in modern wars with great development of trench fighting and aerial activity. In an ordinary year it brings the cultivators from 25 to 30 crores of rupees. On its successful growth depends the prosperity of its people in general and a main source of revenue to Government. The staple primary products of Bengal are jute and rice. And the prices of these two articles are a fairly accurate barometer by which to measure the financial weather in Bengal indicating as they do the purchasing power of the people. Among the two jute is the chief money crop in the Presidency.

It is to be regretted that the main money crop of Bengal has not been harnessed to the service of the educated unemployed and in the long chain of workers between the peasant and the shipper or the management of the mills the educated unemployed

find but inadequate scope for work save as clerks or employees in similar categories.

Jute brings Rupees four crores or more to the coffers of the Government of India in the shape of the proceeds of the export duty on the fibre. This has to be added to the cost of production, etc., when exporting and it puts the fibre at a disadvantage in the foreign markets—especially when there is a persistent attempt in the importing countries to find out cheaper substitutes for jute—particularly in cheap cotton and paper containers, etc. The future success of a monopoly industry like jute depends entirely upon the cost of production being kept stable and low. A textile which is principally required for bags and other useful products can undoubtedly be produced at a cheap price. If even now there is no successful competitor it is simply because jute at present is able to undersell every competitor. Under the circumstances the major portion of the amount realised as duty on jute should be allocated to Bengal and the other provinces producing the fibre in proportion to the revenue raised from them. From this amount a sufficient proportion should be earmarked for research work with a view to improving the fibre and reducing the cost of production as also to finding out additional avenues for its use so that increa sed use may tend to increase the price of jute and preclude the possibility of violent fluctuations which, at times, bring the price down so much that it

barely covers the cost of production. As I have said before, any disproportionate rise in the price of the fibre is sure to put a premium upon the substitutes. So our first and foremost attempts should be to try to lower the cost of production by scientific research and our next an attempt to teach the actual cultivators by demonstration and bring the result of the research to their doors.

It will not be out of place to mention here briefly the various intermediate agencies through which the fibre reaches the market. When the jute is ready the *Fariahs* visit the cultivators and buy the jute or the cultivators themselves bring it to the nearest *hat* where *Fariahs* and other purchasers buy it. The *Fariahs* generally sell the jute to the loose jute balers or small local merchants. The loose jute balers pack the fibre in what are called *Kutcha* bales and sell them to the jute mills and the *Pucca* jute balers at Calcutta direct. The small local merchants ship their jute to the Calcutta *Aratdars* who advance money on the jute and store the bales in their godowns to sell them at the best available market and for this they charge a percentage as commission, godown rent and interest on money advanced. But the *Aratdar* is fast disappearing as the major portion of the jute is now being sold to the Jute Mills and Jute Presses at Calcutta by the Moffusil *Kutcha* jute balers direct—eliminating the middleman. An extremely reprehensible practice often resorted to by the

Fariahs is that of watering the jute with a view to increasing the weight. I may here add that there are other culprits also in this respect. This practice weakens the strength of the fibre and cannot but affect adversely the interest of the cultivators and all those engaged in the jute trade—the deterioration in the quality and strength of the fibre telling on the demand and the price and indirectly helping the substitution of jute by other fibres, etc.

While on this subject I may draw the attention of the European managed mills to the general practice of purchasing from the *Kutcha* jute balers only through European brokers. The result is that although the Indian under-brokers actually secure offers they get only $\frac{1}{4}$ per cent. out of the commission of $1\frac{1}{2}$ per cent paid on the price of the jute. I am of opinion that here is some scope for the employment of educated youngmen provided the European Managing Agents of the mills relax their practice of concluding purchase only through European brokers. If this is done I have no doubt Indian firms of brokers with proper sense of responsibility and energy will soon come into existence, offering a career for our educated youngmen.

I may here point out that even 15 to 20 years back the *Kutcha* jute bale business was mostly—if not wholly—in the hands of Bengalee merchants with a sprinkling of Marwari firms engaged in it; but to-day about 70 per cent of the business is done by Marwari merchants. Bengalees have

practically been ousted and a few European *Kutcha* jute balers who are still in the business linger on in the face of keen competition because they receive the backing of European-managed mills. It must be said to their credit that they are careful about the quality of the jute they sell. The failure of the Bengalee merchants to hold their own against the inroad of the Marwari competitors is to be regretted. It is difficult to assign reasons; but it has to be admitted that the Marwaris are economical, painstaking and more enterprising though there have been occasional complaints about some of their shipments. They get good backing from among the community which helps them to tide over difficulties when they occur. The Bengalees are often less enterprising and prefer the plain and pleasant path of investments in landed properties, in gilt-edged securities and in money-lending. If the temptation of investing one's savings in landed properties had been instrumental in making Bengalees withdraw from the arduous work of trade and the industries, they must contemplate the change that is facing them. The Permanent Settlement itself is being assailed; and new laws about the occupancy of the land in partial violation of the Permanent Settlement and about the rights of the money-lenders and bankers have been and are being forged in the furnace of the Legislature. The new law about the money-lenders deserves especial attention. In

the Bill as originally introduced the Banks, Insurance Companies and allied bodies were exempted from the operation of this law, presumably to avoid the opposition of European and other powerful interests. But I understand that the Select Committee on the Bill have included them as well. But I have reasons to apprehend that this inclusion will not last, and only indigenous financing conducted by Indians will suffer.

Curiously enough our Legislature is so constituted that there will be no difficulty in getting such pieces of legislation passed through, though it will prove a hindrance to the development of trade and industries. But there is the saying that out of evil cometh good. I am sure it will be

already we find our youngmen giving evidence of a change of vision by starting small scale industries. Some of these undertakings are, after a time, becoming successful. My advice to them is: Do not get discouraged, but try to build up success on your failures. Failures are often the stepping stones to success. Patience and perseverance are necessary for success in every sphere of activity.

The Jute industry is the principal contributor to the economic importance of Bengal, especially

of Calcutta, where over 100 crores of rupees have been invested in the jute mills. Jute spinning was carried on as a cottage industry in this province from very ancient times and the yarn spun was used for the manufacture of several useful articles of daily use, such as coarse garment for the poor, bags for the carriages of corn and sugar, etc. The implements used for the production of these were both primitive and indigenous. It gave occupation to both men and women while boys and girls also found work in it. Before 1857 handloom jute products of indigenous manufacture were being exported to many important parts of the world from Bengal in very large quantities. With the advent of the power loom with which the primitive handloom could not compete for ordinary and mas production; the export of jute products of the indigenous handlooms gradually dwindled down and at present there is no export of such products.

Of the 86 Jute Mills working on either side of the Ganges near Calcutta the major portion is under European management. Mills under Indian management are of comparatively recent growth. But the major portion of the capital invested in the mills under European management has come from Indian investors, while in the case of the mills under Indian management it is cent per cent Indian. All these mills employ a large number of men both for management and supervision

and for the manufacturing processes. The superior staff both in the head office and in the factories consists of Europeans, and Indians are employed only as clerks. Only the labour force employed consist of Indians. It is a significant fact that among the actual labourers even less than 20 per cent are inhabitants of Bengal, the rest coming from Bihar, Orissa, U. P., the Central Provinces, etc. But oven 30 years back almost all labour was recruited from the Province. The reason for this falling off in the Bengalee labour force had attracted the attention of the Industrial Commission and has been referred to by Lady Chatterjee in her work on labour in India. The conclusions they have arrived at are a revelation to those who had been prone to attribute this falling off to the Bengalees being averse to hard labour in the mills and their capacity to secure more paying occupations entailing less labour. The members of the Commission as also Lady Chatterjee are of opinion that the environments of the mills—the plan of the coolie lines where seclusion is unknown and where a heterogeneous horde of labourers must live—scare away the Bengalee labourer who is accustomed to live in modest comfort in his village home in his family circle. This opinion is borne out by the fact that in mills not situated in or around Calcutta, in places where labourers from the other provinces go in smaller number in search of employment, the local labour consists of major portion

Bengalees—and it is neither scarce nor inefficient. I will cite the instance of the Dhakeswari Cotton Mills near Dacca and its neighbouring mills where among the labourers there is a large majority of Bengalees, who come from the adjoining villages. They are not only skilful but also up to any hard-work demanded of them.

I have said something about the labourers. Now I will proceed to say a few words about the superior staff where the educated Bengalee has not yet secured a foot-hold. I am confident, given proper training and afforded proper facilities, our educated youngmen can easily qualify themselves for the work and discharge the duties of the posts satisfactorily. At the present moment men with necessary training and qualifications are obtained from Great Britain—chiefly from Dundee—simply because such men are not available in India. For the last 80 years power-driven machinery for the production of jute fabrics are being erected in this country and during this long period men in the upper services are being constantly and consistently drafted from Great Britain. How long will this state of affairs continue ?

I hope the Government and the Mills will accept it as an obligation on them to provide facilities to the children of the soil to be trained in the work and thus qualify themselves for it. I refer to the superior services. These mills employ about eight hundred overseers and supervisors drawing

from Rs. 3,000 to Rs. 700 a month as salary. Besides these they have the Engineers and the Managers whose number is by no means negligible. I have noticed with pleasure Sir Edward Benthall stating in course of his speech in the University that his firm has sent a few Bengalees to Dundee to qualify themselves at the Technical Institute there, with the assurance that they will be absorbed by the firm provided they qualify themselves for the work and secure good report. But I would like to point out the weak joint in the armour. How many of our youngmen can afford to bear the expenses incident to the courses of technical education in a foreign country? The actual expenses to be incurred in the schools may be—as I will point out later—negligible; but the cost of living there with its incidental expenses and the costly passage to and from England are not inconsiderable.

There is a Mining Institute at Dhanbad where youngmen can qualify themselves for responsible posts in coal mines. At the recommendation of the Indian Mercantile Marine Committee the Government have at last provided a training ship ("The Dufferin") for the training of our youths as officers and engineers in Indian waters. I urge that the Government and the Jute Mills Association should combine to establish at least one technical and allied institution at a central place suiting the mills where our youngmen of necessary education

will have the opportunity to get necessary training at a nominal expense as in Dundee. On enquiry I have come to learn that in Dundee there are evening classes in the Technical College for youngmen who desire to improve their position. These classes are extensively taken advantage of as the fees are very low, being 5 shillings per session. The classes are divided into—

(1) Mechanics and Drawing.

(2) Batching, Preparing and Spinning.

(3) Sizing, Weaving and Finishing.

Students enter the mechanical, the spinning or the weaving classes. Two evenings per week are devoted for any one of the three classes. In the College there is one unit from breaker to loom. Raw jute is supplied by the Jute Manufacturers Association along with donations for the upkeep of the institution.

Here it would be quite possible to start evening classes, setting apart one evening for each department—Batching, Preparing, Spinning, Weaving and Finishing. Well qualified Rectors or Professors should at the start be engaged from Dundee if not locally available. I understand a two-year course will prove sufficient to enable students to acquaint themselves with the theoretical side of the business along with practical training in the mills. Their knowledge of the language used by the

labourers will help them to control labour better than those unacquainted with it. There can be nothing to hinder intelligent Indian youths so trained to rise to be in sole charge of any department. It will not be necessary to confine the College to especial training regarding the jute mill industry. Its scope can be enlarged and provisions made for training in mechanical and electrical engineering. Now-a-days jute mill machineries are being manufactured in India in the Angus Mill as also in the Britannia Engineering Works, where the students can receive lessons as also practical training.

It is a matter of regret that during all these years nothing has been done to train youngmen of the country with a view to qualifying them for the higher posts in the Jute Mills. And I hope you all agree with me when I say that precious time should no longer be lost to provide scope for training by the establishment of a technical college as proposed by me. The best course would be for the Hon'ble the Vice-Chancellor of the University and Dr. Syamaprasad Mookerjee, who are taking such interest in solving the problem of unemployment among our educated youths, to approach the Government and the Jute Mills Association with the proposal to establish one technical institution—the expenses to be borne by the Government and the Jute Mills, the proportion of contribution to be settled between them. There is no reason why

this training should not be made as easily available and cheap as in Dundee. I have every reason to hope that if they will interest themselves in the matter their endeavours will be crowned with success. Provisions will also have to be made of a certain percentage of locally trained youths being employed in all the mills.

One word to my young friends and I am done. There is struggle ahead and the education the University imparts only prepares you for that eventful struggle. Do not be discouraged by failure but struggle on with determination and will to overcome obstructions and attain success in life. You must always bear in mind that there is no easy road to success. And if you want to secure a place in the business activities of your Province you must be prepared to face risks and work hard.

SHIPPING IN INDIA

By GAGANVIHARI L. MEHTA,
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I am grateful to the Calcutta University for inviting me to speak this afternoon in the course of *Career Lectures* organised by the Appointments Board of the Calcutta University.

I would like to confine my observations to-day to certain broad aspects of the problems of Indian shipping, particularly in relation to the careers which it offers to young men of this country and of this province.

Shipping as a mode of transport has been in existence since ancient times. Broadly, we might divide shipping into three categories,—namely inland shipping, in the rivers and canals within the country ; coastal shipping, between the coastal ports of the country, and ocean shipping or overseas shipping, between ports of one country and another—although all these three types of shipping are interrelated.

The question of inland shipping is a vital subject for a Province like Bengal. There are nearly 15,000 miles of inland waterways in Bengal, which not only irrigate the lands through which they flow but also serve as means of transport. The Province is peculiarly suited for the development of these waterways and their maintenance is as important to its economic well-being and progress as the mainte-

nance of railways and roads. They offer immense possibilities for the development of inland navigation at a relatively small cost. Water transport, it is well-known, is economical and, in a deltaic Province like Bengal, very essential. But it is regrettable that these waterways have not been sufficiently safeguarded as compared with those of other means of transport. There is no doubt that if these waterways were improved and extended, merchants, producers and manufacturers would utilise them to a larger extent than they have been able to do hitherto. Calcutta itself being an important port, the necessity of a navigable route between Calcutta and the rest of Bengal is vital. In the highly industrialised countries of the West, waterways are looked upon as supplementing railway transport not only as feeders but as alternative form of communications without which the development of a country's transport system is not complete. Such development would also provide scope for the training and employment of a cadre of Bengalee engineers who should specialise in river engineering and should be assisted to acquire an intimate knowledge and experience of conditions and problems connected with deltaic rivers. Questions like erosion, deposition of silt, flood control, river bars, etc. are common to several deltaic rivers and young engineers from this Province should be specially sent abroad in order to study the measures adopted in other countries for this purpose with a view to

enabling them to apply that knowledge to the waterways of Bengal with such modifications as may be necessary to suit local conditions. A beginning could be made by the establishment of a river physics laboratory and research officer to study and solve the complicated river problems of Bengal.

It is also necessary to point out that inland shipping in Bengal is predominantly in the hands of British concerns and the share of indigenous concerns is relatively very small. There are a few Bengalee ventures in this line, of which the largest is the East Bengal River Steam Service, Ltd. This sphere offers immense scope for Bengalee capital and talents, although such ventures will, at the start, meet with considerable opposition from vested interests. The difficulties and impediments which such enterprise would have to face were fully dealt with by Mr. Jogendranath Roy of East Bengal River Steam Service, Ltd., in his statement and evidence before the Indian Mercantile Marine Committee in 1923 and have also been referred to by Sir P. C, Ray in his autobiography. But these difficulties have to be faced and overcome. Moreover, the Inland Steam Vessels Amendment Act (Act XIII of 1930), which was placed on the Statute Book through the efforts of Mr. K. C. Neogy, can be helpful in preventing a new venture being exterminated through rate-cutting as it provides for the constitution of a Rates Enquiry Committee in case of outbreak of a rate war. There is no large indi-

genous inland shipping company for the carriage of passengers and this is a line of expansion which needs the earnest consideration of the public and commercial leaders.

India and Bengal have had a long and proud tradition of shipping and maritime activities. It would be out of place to dwell at length on the history of these maritime activittes but a few illustrations might be cited to show the nature and extent of its development.

From ancient times India had extensive commercial relations with various parts of the world and this commerce was carried on by national shipping. Leaving aside the early epochs of Indian history, it might be mentioned that there was remarkable maritime and colonising activity in the first few centuries of the Christian era when people from Calingo and Bengal as well as from Gujarat and Kathiawar went to Burma, the Straits, Java and other places. Indian maritime intercourse existed with the Far East, West and with Africa. In East Africa in A.D. 1498, for example, Vasco da Gama found sailors from Cambay and other parts at India, who guided themselves by the help of the stars in the north and south, and had nautical instruments of their own.

In the Mughal period, particularly under Akbar, the centre of maritime activity shifted to Bengal which then became the home of Indian shipbuilding. The port of Chittagong was, for example, a

famous shipbuilding port and the seamen of Chittagong and Noakhali showed great skill in seamanship and even to-day they play an important part as crews and lascars in steamships. The Venetian traveller Cessare di Fedorici writing about the year 1565 states that 200 ships were laden yearly with salt and that such was the abundance of materials for shipbuilding in this part of the country that the Sultan of Constantinople found it cheaper to have his vessels built in Dacca than at Alexandria.

Lord Wellesley, the Governor-General of India, wrote in 1800 as follows regarding Indian ships in the Port of Calcutta :—

"The Port of Calcutta contains about 10,000 tons of ships *built in India* of a description calculated for the conveyance of cargoes. From the quantity of private tonnage now at command in the Port of Calcutta and from the state of perfection which the art of ship-building has already attained in Bengal (promising a still more rapid progress and supported by an abundant and increasing supply of timber), it is certain that this port will always be able to furnish tonnage to whatever extent may be required for conveying to the Port of London the trade of private British merchants of Bengal."

It will, therefore, be evident that Bengal along with the rest of India had developed its shipping

and shipbuilding from the earliest times. It will naturally be asked as to why these industries declined. To students of economic history this is not a difficult question and I need not discuss it at length. The Industrial Revolution brought about a change in the technique of shipbuilding and ship propulsion. Iron and steel ships were built and were propelled by coal and by oil, instead of ships with sails. Although England had a start in regard to the new industrial technique, other countries which were more or less independent adapted themselves subsequently to the new conditions and development of British shipping and shipbuilding. But this was impossible for India because political and economic conditions precluded India from developing its own shipping. The period of transition from the sailing ship to the steam vessel was unfortunately for our country coincident with foreign political and economic dominance. The result was that Indians could not adapt themselves to the changed conditions in this trade like shipowners in other countries and a progressive development of Indian shipping and shipbuilding industry was checked at this critical period of transition. Nor was that all. Positive measures were also adopted to discourage Indian shipping and shipbuilding. Ships built in India and manned by Indians were prohibited entry in the United Kingdom by the Directors of the East

India Company under the pressure of British shipbuilders and shipwrights. Indian shipping gradually declined under these conditions.

Shipping is regarded as a key industry by every maritime country of the world and is encouraged directly and indirectly for defensive no less than economic reasons. The development of shipping is, particularly since the last War, considered a matter of national policy. The reasons for this are not far to seek. The importance of transport in the economic world today is fundamental. The ship is a link in the chain composed of banking, insurance, export and import services, etc., which binds the seller to his buyer. No country wholly dependent for the transportation of its ocean commerce upon other countries can enjoy freedom or certainty of movement or reasonable expectation as to the rates it will have to pay. A non-shipping country always has been and will be at a disadvantage in respect of rates which are an essential factor for the development of maritime trade, because of its inability to participate in the rate-making. Such a country will suffer loss and inconvenience whenever emergencies or national demands of the carrying countries require the use of tonnage for national purposes. Moreover, earnings from shipping constitute an important item of "invisible exports" for a country like England and "invisible imports" for a country like India. The Board of Trade in England

estimates every year the contribution made by British shipping in the form of invisible exports towards the national balance of payments. These amount on an average to nearly £100 million per annum and came to about £130 million or about one-third of the whole invisible exports in 1937. In fact, shipping's contribution has helped to redress this year's visible adverse balance of Britain as has been, indeed, the case during several years recently. So far as India is concerned, precisely the reverse is the case. Because all the foreign trade of India is carried by non-Indian shipping, the freight earned constitutes a drain from the country. It is not easy to calculate exactly the total amount of "drain" of India's wealth on account of freight bill owing to the absence of shipping freight index but it has been estimated that the bill paid by India to non-Indian shipping companies by way of fares and freight for both our coastal and overseas shipping amounts to nearly Rs. 50 crores.

A merchant marine is also an element in the sea power of a nation and is essential to the security of a maritime country. A mercantile marine is not only a training ground and a feeder of a Navy but a reserve and a second line of defence. Even a well-organised Navy with its battleships and cruisers, its destroyers and submarines would be seriously handicapped if it were not adequately supported by the mercantile fleet pro-

viding transport to troops, munitions and hospital ships, auxiliary cruisers, mine-sweepers, submarine chasers and other vital necessaries of naval warfare. It would serve to protect the flow of commerce, both coastal and overseas, from interruption as well as to prevent a blockade of ports. It is owing to a recognition of this vital importance of strength and efficiency of a mercantile marine as the complementary agent to a Navy and as a means of national defence that the development of shipping has become an instrument of national policy in every important maritime country of the world since the War. The establishment of a national Navy would provide opportunities for the employment of young men of the country and this Province as naval officers, engineers and reserves. While in other countries fishing trawlers form a part of coastal defence and have carried out mine-sweeping in the War, Japanese trawlers have been bringing fish into Bengal.

India has a coast line of over 4,000 miles with seven major ports, of which two, namely, Calcutta and Chittagong, are in Bengal, and has a number of minor ports. It is not necessary to deal at length with the chequered history of Indian shipping because it is well-known. But the present position of Indian shipping might be briefly stated. India has a total coastal and overseas trade of nearly £400 million per year. About 30 million tons of cargo and 3 million passengers are carried every

year in this trade. But of this vast trade of India, Indian shipping carries hardly 5 per cent. In the coastal trade of India, which should belong to Indian shipping by every cannon of international law, maritime practice as well as Imperial shipping convention, Indian shipping at presant carries only about 20 per cent. of cargo and 8 per cent. of passenger traffic. The total Indian tonnage em ployed in the Indian coast is only about 23 per cent. of the total tonnage plying on the coast. The rest of the tonnage is British. In the overseas trade of India, whereas the share of British shipping is 64·3 per cent., foreign shipping is 34·55 per cent. and Indian shipping has the negligible proportion of 1·15 per cent. It will be seen, therefore, that even in India's home-waters, which is legitimately its own sphere of trade and domestic preserve, Indian shipping has relatively a very meagre share.

The scope of employment in the shipping industry can now be considered. Broadly, it might be divided into employment on the ships and employment on the shore. Although the question of employment at sea is not of immediate interest to University students because the age limit for it is, under the regulations of the Board of Trade, much lower, I shall first deal with this problem as it is that aspect of the question of shipping as a career which is of primary interest. It is essential to point out that about a decade ago no facilities were at all available to Indians for either training or for

employment in marine services mainly because no Indian shipping companies had been able to establish themselves on the Indian coast. When the Indian Mercantile Marine Committee, appointed by the Government in 1923, took evidence on this subject, the representatives of British shipping interests stated that, in their opinion, no special facilities were needed for training Indians in this line and admitted that their fleets had hardly any Indians in any of their ships either as officers, engineers or wireless operators. It was argued by these non-Indian interests that Indians had no sea-sense and that educated Indians of the *Bhadralog* classes would not be attracted to the sea. The Indian Mercantile Marine Committee, however, recommended that the Government should provide special facilities for training young Indians and as a result, a Training Ship called the "Dufferin" was started in Bombay in 1927 for training officers in the mercantile marine. It is necessary to make it clear that an officer in the mercantile marine is not in any way a Government officer but is in the service of a private shipping company. As no one can operate or pilot a ship without holding certain specified certificates of competence under the regulations of the Board of Trade in England, training and apprenticeship on lines approved by the Board of Trade are absolutely indispensable for employment as an officer or engineer on a ship.

The working of a ship may be divided into

three main branches, namely, navigation, engineering and marine wireless. The crew form an important class but they rarely come from the middle-class and their question has little bearing on the subject under consideration. It might be added, however, that seamen from Bengal and particularly Chittagong and Noakhali, are still employed in large numbers as lascars on ships both coastal and foreign.

Let us first consider the navigation branch. The "Dufferin" trains up at present officers in the navigation and engineering branches. The candidates who wish to join the "Dufferin" have to be British subjects whose parents are domiciled in India or subjects of a Ruling Prince in India and must be between the ages of 13 years 8 months and 16 years on January 15th of the year of entry into the "Dufferin." They are required to pass a qualifying examination which is held about the 1st November simultaneously at Bombay, Calcutta, Lahore, Lucknow, Patna, Madras, Delhi, Karachi, and Rangoon. Candidates who pass this qualifying examination are then interviewed by the Selection Board and have to undergo on eye-sight test as clear sight is absolutely necessary for a career at sea. The total coarse in the "Dufferin" is for three years. The fees charged are Rs. 50 per month *plus* Rs. 10 for extras during the eight months of the year making a total of Rs. 480 a year, to which the cost of uniform and upkeep of

it must be added. But this is inclusive of tuition and boarding. An estimated average to a parent, excluding holiday and railway fares, for the 24 months during which time the boys are actually in training, spread over a period of three years, would amount to Rs. 1,750. After three years' training in the "Dufferin" the boy is required to do another three years at sea as an apprentice in one of the ocean-going shipping companies, after which he is qualified to take his examination for a certificate of competency as Second Mate or Officer. The certificate of a Second Mate enables the boy to obtain the post of a Junior Officer in any British ship anywhere on a pay which at present would amount to about Rs. 150 but he would be able to rise steadily through the ranks of Third Mate, Second Mate and Mate to the position of the Master of a ship. The pay of Senior Chief Officer varies between Rs. 450 and Rs. 500 a month and he would get something between Rs. 500 and Rs. 1,000 when he attains command of the ship. After passing the Second Mate's examination a boy has to put in a year and a half in an ocean-going ship for qualifying himself for a Mate's certificate and after another year and a half for a Master's certificate. Consequently, six years after coming out from the "Dufferin" a boy has a chance of taking command of a vessel if he obtains service and passes out regularly. When the boys go to sea, the parents are required to find between Rs. 500 to Rs. 1000

in placing them with one of the shipping companies for the three years' training at sea. The premium paid to the shipping company is returned to the cadet in the form of wages when at sea. In case the boy changes his mind about taking to a sea career, it has been arranged that the final examination of the "Dufferin" would be recognised as equivalent to the Matriculation Examination and this has been agreed to by several Universities including Bombay, Calcutta, Madras, Andhra, Punjab, Patna, Mysore, Nagpur, etc. The total number of entries in the "Dufferin" is limited to 50 per year, of which 25 are for navigation and 25 for engineering branches. Six scholarships of the value of half the fees, namely, Rs. 25 per month and applicable to navigation and engineer cadets have been granted by the Government of India to assist those parents or guardians who are not in a position to pay the full fees to send their boys to the Training Ship. The Government of Bengal also grant three scholarships of the value of Rs. 25 per month for the same purpose. These scholarships are tenable for three years. In a recent *communique*, the Bengal Government announced that two of these scholarships would in future be reserved for a Muslim and an Anglo-Indian boy in any year in which such boys would secure admission to the Training Ship. Scholarships are also given by several public bodies and firms including the Port Trusts of Bombay,

Rangoon and Madras, the Karachi Municipality, the Madras University and the Scindia Steam Navigation Company. I might add parenthetically that efforts were made to induce the Calcutta Port Commissioners also to give such a scholarship a few years ago, but were unsuccessful.

The total number of cadets admitted to the Training Ship, since its inception eleven years ago, is 422, of whom 260 have completed their course and have passed out. 64 for the navigation branch and 66 for the engineering branch are still in training. Of those who have passed out, 73 are certified officers at sea, 69 are apprentices at sea and 25 are apprentices in marine engineering workshops. 6 cadets hold the King's Commission in the Royal Indian Navy and 3 are undergoing training in the United Kingdom. Among the ancillary services to which they have taken, there are 11 cadets in the Bengal Pilot Service, 7 in the service of the Calcutta Port Commissioners, 1 in the Rangoon River Survey, 4 in Imperial Airways, 1 in the Royal Air Force and 5 in the Indian Army. It might be added that as regards candidates who are apprentice-officers at sea, over 54 per cent. of them are absorbed in the ships of the Scindia Steam Navigation Company. The British Shipping Companies have been reluctant to employ the ex-cadets of the "Dufferin" on their ships as officers but continued pressure of public opinion

and insistence on the part of the Central Legislature and Indian commercial bodies have effected some improvement in this connection during the last two or three years. The question of the employment of these cadets in future as they come out year after year is, of course a problem which can be satisfactorily solved only if the Indian mercantile marine expends and absorbs these young men.

For training in marine engineering, adequate facilities did not exist till recently. A young man desiring to qualify as a marine engineer has to serve as an apprentice in a marine workshop for four years, after which he might be able to join the ship as a junior or apprentice engineer. The first difficulty of an Indian boy is, of course, to obtain admission into one of the marine workshops which are mostly owned and managed by Britishers. As shipping has hitherto been in the hands of non-Indians, workshops for repairing ships or building launches are naturally not in Indian hands. All these industries are interrelated and tend to supplement one another. As there is no shipbuilding industry in India, there are no shipbuilding yards or workshops where Indians can acquire training and experience in the technique of shipbuilding. For the last four years, the " Dufferin " has, however, started courses in the engineering branch. Arrangements have been made for providing facilities for training as apprentices to these cadets at

the principal marine workshops in Bombay, Calcutta and Rangoon. The work of an apprentice is arduous and the pay given by the workshops is small. In order to assist the apprentices during their period of training, the Government of India are granting fifteen scholarships annually, each of the value of Rs. 50 per month and tenable for 3½ years to these apprentices. During the apprenticeship, the cadet would ordinarily receive a small wage varying from As. 8 a day in the first year to about Rs. 1-8 a day in the final year. After completing four years' apprenticeship in an approved workshop, a candidate has to serve at sea for a period equivalent to eighteen months in an ocean-going vessel as junior or apprentice engineer to obtain his certificate as a second class engineer and a further period of eighteen months as a senior engineer to obtain a first class engineer's certificate.

It is interesting to note that until the establishment of the "Dufferin," there were in the whole of India hardly 3 or 4 Indians holding a Captain's certificate of an ocean-going steamer and it was only last year that 4 of the "Dufferin" cadets qualified for Captain's post. Similarly, although fifteen years ago there were hardly 1 or 2 Indian engineers in the numerous British ships plying in the coastal and foreign trade of India, today a majority of engineers in Indian shipping companies are Indians including many Bengalis, some of

whom are in independent charge of the engine rooms. While the number of engineer cadets turned out by the " Dufferin " might appear small, it is necessary to point out that even today there are young Indians who have undergone the necessary training in marine workshops but who are unable to find employment owing to the insufficient number of available posts of junior engineers. There are, in fact, very few Indian shipping companies which can offer them such posts. It is, therefore, essential for the Government to take steps to see that the young men so trained find suitable employment either afloat or ashore. The Calcutta Port Commissioners should, for instance, encourage such engineers in their workshops, docks, launches, dredgers, etc. Besides, as regards both the navigation and engineering branches, the Government of India should lay down that all ships plying in the coastal trade of India could do so or receive mail subvention and other concessions provided only that the owners give an undertaking regarding the training and employment of Indian apprentices and officers in the navigation and engineering lines and the Indianisation of their marine services. This was one of the recommendations of the Indian Mercantile Marine Committee and the Government can enforce it if they have the will to do so. As regards wireless operators, it is remarkable that only about ten years ago there was hardly any Indian wireless operator available nor were

there any training facilities in this line. At the suggestion of the Scindia Steam Navigation Company, the Government opened a class in Alipore in 1928, where about 20 boys were trained up, of whom 17 were sent up by the Scindia Company alone. The position today is that all the wireless operators in the Indian shipping companies are Indians including several Bengalees who are in full charge of the wireless apparatus. In this connection, it might be mentioned that suggestions had been made to the Calcutta Technical School to inaugurate and conduct special classes in wireless including marine wireless as this is a sphere which can absorb an increasing number of young men owing to the rapid development of the wireless and the radio.

The question of employment in the Indian Navy might also be referred to here. There are two methods by which an Indian boy can join the Royal Indian Navy, namely, (*i*) through the examination held by the Federal Public Service Commission at Delhi when the boy is between 17½ and 19½ years of age, and (*ii*) through what is known as the "Dufferin" entry wherein the candidates appear for examination after completion of the cadet's three years' training in the "Dufferin." As observed above, 9 cadets of the "Dufferin" have already joined the Indian Navy and 3 more vacancies, 2 executive and 1 engineering, were offered to the "Dufferin" cadets last year. There

are 127 officers in the Indian Navy, of whom 13 are Indians. Every year 9 officers are recruited to the Indian Navy, of whom 3 are Indians. There is, of course, imperative need of an acceleration of Indianisation in this service which must henceforth recruit only qualified Indian officers and engineers. This is also an avenue of employment which has great possibilities in the future, because we cannot have self-rule without self-defence.

A career at sea involves hard work and strict discipline. It calls for endurance, stamina and above all high endeavour. Although one misses in it the usual amenities of shore life, it has several compensating advantages such as fresh air and clean surroundings, the invigorating environment of the sea and opportunity to visit and see different places of interest. Moreover, sea career requires grit, initiative, power of quick decision and sense of responsibility. He who commands in it must first learn how to obey. The best traditions of the sea inculcate loyalty to fellow-workers on the ship and implicit discipline towards constituted authority and unflinching devotion to duty, which are all a training for leadership. It is apparent from all reports about the cadets trained in the "Dufferin" that the Training Ship has been a nation-building enterprise and that the boys are imbued with the best of sea traditions and are acquitting themselves creditably not only on ships but also in bodies like the Port Trusts and the Pilot Services. They have

thus completely belied the contention of British shipping interests about the inability of Indians to take to sea career. There cannot, indeed, be an Indian mercantile marine without its being officered and manned by Indians.

Ships have not only to be run on the seas but have also to carry passengers and cargo, for which a large organisation is necessary on the shore. Shipping offers an admirable field of opportunity for careers to men who are qualified for responsible positions. A shipping office is a complex organisation which has to deal with commercial as well as technical subjects and has to have contacts with several organisations and authorities such as the Port Trust, Customs, Pilotage and Lighthouse administrations, Ships Surveyors, Underwriters and Insurance Clubs, etc. It would no doubt be of interest to trace all the work in a shipping office from the time a ship is either purchased or chartered up to its sale or re-delivery; similarly, the whole procedure adopted from the time a ship enters a port up to its clearance outward after discharging and loading cargo or passengers would throw light on the structure and functions of shipping organisation. But it would be difficult to outline this procedure in the course of this lecture. In a shipping office, there are several departments such as those dealing with exports and Bills of Lading, imports and delivery, passage and booking of passengers, freight and cargo, claims, ship-

ping rates and accounts. Moreover, every modern shipping organisation has to have a qualified Marine Superintendent and Superintendent Engineer who are responsible for their respective floating staffs and also attend to all work connected with the repairs and surveys of ships. With every shipping organisation again there is the ancillary business of ship broking and of stevedoring, the former of which is connected with canvassing and securing of cargo for ships and the latter with the actual loading and discharging of cargo at the port. Marine insurance, both of ships and of cargo, is also intimately connected with shipping business. In big shipping centres like London, there is, of course, a fully developed chartering market and it might be mentioned here that until a few years ago, no Indian was admitted in the Baltic Exchange which deals with the chartering of ships all over the world.

The relationship of ports to shipping is vital. The major ports in India are administered by specially constituted Port Trusts under the general control and supervision of the Government of India. The administration of the Port of Calcutta is vested in the Commissioners for the Port of Calcutta established in 1870. The administrative heads are the Chairman and Deputy Chairman who are whole-time officers appointed by the Government with a number of departments under them such as administration, traffic, engineering,

audit and accounts, stores as well as the department under a Deputy Surveyor which controls and attends to the movements of the ships and to the survey of the Hooghly River. Besides the Chairman and the Deputy Chairman there are 17 Commissioners, 12 of whom are elected and 5 nominated by the Government. Of the 12 elected Commissioners, 6 are returned by the Bengal Chamber of Commerce, 1 by the Calcutta Trades Association, 1 by the Corporation of Calcutta and 4 by such bodies as the Government select as being representative of the Indian commercial community. In the Calcutta Port Trust there are 14 European Commissioners and 5 Indian Commissioners. The scope for employment for young men trained in the University is wide. For example, in such departments as accounts and audit, traffic, engineering, stores and railways, there are opportunities of employment for Indian young men with the requisite qualifications who should receive preference in these higher grades as a matter of right. As regards the River Survey Department, there are 6 ex-" Dufferin " cadets but it should be made a rule that no one except the " Dufferin " cadets should be recruited for these posts. Similarly, the posts of Assistant Harbour Masters and Habour Masters require technical qualifications which are not at present possessed by Indians but, with the training of Indians in marine services, Indians will be available

in these spheres also in the near future. In the superior services, *i.e.*, appointments carrying a pay of Rs. 500 and upwards, there are about 225 posts, of which about 25 are at present held by Indians, the rest being 85 Anglo-Indians and 114 Europeans. Resolutions were passed in the Council of State in 1922 and 1932 regarding Indianisation in the higher grades of the Port Trust services and continuous efforts are neccessary to see that this policy is carried out and is accelerated by the Port Trusts. But apart from this direct employment the labour contract of the Calcutta Port Commissioners can also indirectly give opportunity to local firms and thereby increase the scope of employment for local talents.

Calcutta has also potentialities of development for shipbuilding. It already possesses some ship-repairing workshops but it has no shipbuilding yard. Since steel and coal are more cheaply and quickly available here than at any other port in India, it offers excellent opportunities for the establishment of a shipbuilding industry. In any programme of planned industrial development for a Province like Bengal, shipbuilding industry should have an important place not only from the economic point of view but also from the point of view of national defence. Such an industry located in Calcutta will be useful not merely to the Port of Calcutta but also to inland shipping of the Province and, in fact, to the larger industrial

development of Bengal, as it will lead to several ancillary and auxiliary industries.

All these various lines even at present offer some avenues of employment to young men. But they could offer full scope not merely in subordinate positions as now but in higher and responsible appointments only with the development of national shipping. No doubt, in clerical and minor positions, our people could be employed by British concerns, but they would never be able to control or direct these concerns unless they are owned and managed by our own people. It is not easy to break new ground, to build up our own enterprise, instead of serving and following the routine in that of another, to strive against heavy odds. But the harder the task, the nobler the call. The ambition of young Bengal is and must be not to seek jobs under others but to create conditions and opportunities for economic self-reliance and development. Let no one be deterred or disheartened by failures. Not failure, but low aim, said the poet, is crime. If our aim is not petty success anyhow obtained, but service honestly and wisely given, we have nothing to fear. Even apart altogether from the question of retaining the earnings of the industry within the country itself, national talent cannot rise to its full height without the industry being under the complete control, direction and management of Indians themselves.

SUGAR INDUSTRY

By DEBIPRASAD KHAITAN, M.L.A. (Bengal)

Birla Brothers, Ltd.

It is a great pleasure to me to be in the midst of my young friends. I am asked to speak a few words about the prospects of the employment of the educated middle class men in the sugar industry of the country.

The series of lectures that has been organised by the Appointments Board of the Calcutta University is in furtherance of their desire to find out new avenues of employment for the youngmen whom they send out into the world after completing their education. They deserve the congratulations of all who have the welfare of the people at heart for this very laudable effort for mitigating, in some measure, the scourge of unemployment. Although, no doubt, the problem is a complicated one and has deep-laid roots and must wait, for its radical solution, on a scientific study of all the attendant circumstances and an overhauling where it may be necessary, it can be assumed that much of the trouble is due to maladjustment of demand and supply. Educated men must now know where they can make themselves serviceable to the society. Up to some years ago, a boy who graduated in Arts, Science or Commerce did not have any worries

about earning his livelihood, as he could easily get a post under the Government or Municipalities, etc., or else he could join one of the learned professions. As education has spread and learned professions have become crowded, unemployment among the educated middle classes has attained serious proportions. Posts under the Government and quasi-Government bodies have not proportionately increased. Educated boys are loath to follow the occupations of their ancestors. The difficulty is enhanced by the fact that population has increased and agriculture is unable to find occupation for the growing population. There is thus great misery, both among the educated classes and the illiterate masses.

In our search for a solution of this grave problem confronting the educated middle classes, we find that there is no other alternative than that they have to be absorbed in industries and trade. It is quite true that the spreading of education, sanitation and other nation building activities will enable the Government to find employment for a larger number of persons than now. But they cannot absorb all the unemployed youths.

The country is thus faced with a struggle for existence. I hope I will not be misunderstood when I say that the struggle for existence offers the best atmosphere in which the inner springs of action are set in motion and which produces the desire and determination which are always necessary to make

the life whether of an individual or of a nation prosperous and successful. If you study the history of those communities and nations that have made their mark in any sphere of life, you will find that the struggle for existence has always been the fundamental urge which has given rise to initiative, enterprise, capacity to bear suffering, whole-hearted devotion to work and the will to succeed in the midst of all obstructions, obstacles, failures and disappointments.

Let it not be thought that life anywhere has a smooth flow. Trouble and difficulties of every kind occur whichever line is adopted by any individual. Success comes by the determination not to grumble at, or shrink away from, difficulties of any kind but to live through them with courage and faith. One cannot afford to be sensitive but has to become thick-skinned. In saying this, I have no desire to give utterance to platitudes but I can see now that the struggle for existence will necessarily force out these much-needed virtues from our young men. I do not feel any pessimism but am full of optimism for the future. We shall, of course, have to suffer, but through suffering and determination we are bound to thrive. During the last ten years of the history of India it is this determination to attempt and succeed against all odds that has brought about a wave of industrialisation in the country. Existing industries have expanded and new industries,

big and small, have come into existence. This industrial development has to some extent restored the balance in the economy of our country. Due to historical circumstances, while countries of the West were fast developing a large range of industries, India was steadily being, if I may use the expression, de-industrialised. This process culminated in the grave position immediately before the World War when our country found itself unable even to supply the essential necessaries of life of our people. In short India became, and began to be considered as, merely an agricultural country—a country of which it was considered that she could produce cotton but not cloth, could grow cane but not make sugar. This position has to some extent been redeemed by the attempts of the people since the Great War in rehabilitating her position in the industrial sphere.

The sugar industry is one example of this effort. Only half a dozen years ago our country had to depend on imported sugar for its consumption. We used to send out about 15 crores of rupees every year to foreign countries specially to Java. Fortunately, protection was announced by the Government of India. At that time the Government had thought that the industry would at best make a slow progress. But the need to find new avenues for investment and employment had become so serious that within two or three years the industry expanded to such an extent that not

only was the demand of the country for white sugar fully met, but in 1936-37 it was experienced that with a good crop of sugar cane the factories were able to produce more than the country's requirements. More than Rs. 20 crores were invested in the industry. It directly benefited cane growers and found employment for educated people and other workers. The wage bill of the industry amounts to over two crores of rupees per year. It was due to the sugar industry that the danger of agrarian revolution that threatened the United Provinces and Bihar in the first quinquennium of the present thirties disappeared. The U. P. and Bihar have natural advantages for the cultivation of sugar-cane but it is satisfactory to note that Bengal has not been quite negligent of the opportunities. About a dozen sugar factories have already been established in our province. While U. P. and Bihar have natural advantages for the cultivation of sugar-cane, our province has the advantage of a large local consuming market and the factories in this province have an advantage over U. P. and Bihar in the cost of transport of sugar amounting to not less than eight annas per maund, but appreciably more in several parts of the province. The consumption of sugar per head in India is much lower than in the other civilised parts of the world. and this under-consumption is, as you are aware, due to the extreme poverty of our people. There is a great awakening in the country to raise the pur-

chasing power of the masses. People are investigating ways and means for raising the standard of living in the country. I have no doubt that as a result of the determination that we are witnessing today the standard of living will steadily increase. As this result will be progressively realised, there will be an increasing demand for sugar leading to a further expansion of the industry.

The sugar industry is happily one in which a large number of the educated people can find employment. Except for such workers as have to do loading and unloading—and their proportion in a sugar factory is not large—all other work is of a light nature. The manufacture of sugar is essentially a chemical process and on the machinery side people skilled in engineering are needed. On the chemical side the Supervisors and the men engaged in the laboratory need to have both theoretical and practical training. Those that are engaged in the process of manufacture only need a little practice which has been acquired even by illiterate people. It stands to reason that educated people can easily acquire that practice and be quite competent to do that kind of work. It is, of course, not merely desk work but more of a physical nature. But why should we fight shy of manual labour simply because we have received literary education. We see before our eyes that various educated people like Engineers, Overseers, Compounders, Shop-Assistants, etc., work with their hands. The only

difference is that those engaged in a factory have to work in a factory whereas Shop Assistants have to work in a shop.

Without tiring you with the details of the various processes of manufacture I might just give you an idea of the different occupations in a sugar factory. The first task in the series is organisation of the supplies of the raw material of the industry—sugar-cane. You probably know that sugarcane is a perishable commodity. It matures in the fields at a particular time. After that it must reach the factory in as short a period of time as possible. Most of you who now and then chew a stick of cane may harbour in your minds the idea that it is a hard and rough thing. But I assure you, it is a very delicate thing and is extremely sensitive of the treatment that it receives at the hands of growers and the cane departments of the factories. They have to arrange a time-table for the arrival of cane from different areas with precision and accuracy giving due consideration to claims of seniority. They have to see that on their arrival the consignments are admitted into the factory for crushing without undue delay, otherwise the factories are subject to heavy penalties in the form of less recoveries. There are many other problems which have to be taken care of in this connection. But it will be obvious from what I have already told you that the whole work requires skill and intelligence. I need hardly say that all

occupations in this connection are filled up by educated young men.

After the cane has been delivered at the factory it is crushed in what is called the Milling department. The work of the drivers, mill-fitters and oil-men employed there is light but requires skill and some technical knowledge. The juice then passes to the clarification department, and is handled there by technical men under the guidance of chemists. Similarly the subsequent processes of filtration, boiling and centrifugaling do not involve hard work. The other departments are the factory laboraty, boilers and engineering, and the educated people are already employed there. So far as the office is concerned I need hardly mention that it is wholly meant for the educated people.

What I have said above completes all the processes in sugar manufacture. The point to be noted in connection with all these processes is that although the jobs require some technical experience they are on the whole such that with due attention one can acquire efficiency in performing them in a very short period of time. But at the same time they afford educated men a scope for showing their efficiency and thereby convincing their employers of their superiority over uneducated men. You will thus see that this industry has furnished, and does furnish, a good field for the employment of the educated middle classes.

In what I have said above I am not drawing upon my imagination. I have seen educated boys doing similar work. I do not know if you are aware that, in the Kesoram Cotton Mills, the Hosiery Department is reserved for boys drawn from the educated middle-classes—about 650 such boys actually work there. The work in sugar mills is in no way more difficult or hardy. I feel that as times progress, more and more educated people will be employed in factories.

I do not propose to take more time over this subject. It is hardly necessary to plead at length for the acceptance of the proposition that industrial development diversifies the channels into which the national energy may flow and thereby not only maximises the production of social wealth but, what is very important, also ensures its better-distribution by enlarging the avenues for employment. In the few words that I have addressed to you this evening I have briefly indicated the opportunities that are offered by the sugar industry to the educated unemployed of the country. But as I have already said in the earlier part of my speech the problem has assumed such serious proportions and is embedded so deep in the circumstances of the society that the contribution that the sugar industry can claim to the solution of this problem can but be a modest one. But it is not so much the extent as the nature of the contribution that is important. It is a pointer to the right way. I am

sure, if the path indicated is pursued, the young men of our country will be relieved from the dead-weight of unemployment sooner than we can expect. And above all, it is the spirit that matters. Let each young man who goes out of the University have faith that he has an allotted part to play in the service of his country. Let him not consider any job too mean, for greatness does not lie in the task but in the spirit in which society's work, which is verily God's worship, is done.

LEATHER INDUSTRY

By Rai Bahadur B. M. Das, M.A. (Cal.), M.Sc. (Leeds.)

National Tannery Co., Ltd.

Leather Industry deals with the manufacture of leather and articles made of leather. Leather is made from animal hides and skins. Although the flesh of some animals which we call meat is eaten, their hides and skins are inedible. Hence to get the meat the bodies of butchered animals are flayed to take off the hides or skins from them. If we cannot eat these hides and skins, what can we do with them ? To answer this question, let us go into the question somewhat deeply and ask another question. Why are animals provided with hides and skins ? Of what service are they to the living animals ? Histologists have answered this question for you. They serve as protection to the bodies of animals. They are a sort of nature's thermostat which keep the body temperature constant and also shield the animals from outside cold and rain. So we also can put the hides and skins that we separate from bodies of slaughtered and naturally dead animals to a use similar to the one that nature meant for them, *viz.*, for protective purposes, instead of throwing them away.

But how can we do that? Hides and skins as they are taken off from animal bodies are wet and if they are kept in this condition they rot and decay. If we dry them out we can preserve them for a time but not very long, because dry hides also decay after a while and are attacked and eaten up by worms and maggots that grow in them. Besides, when dried, hides and skins become hard like horn and in that condition cannot be utilized for making any useful articles of a durable nature.

To make hides and skins serviceable it is necessary to convert them into a non-perishable and pliable material. This is done by the treatment which is called tanning. Tanning converts the perishable raw hides and skins, which become hard on drying, into a non-perishable substance which remains soft and pliable even when it dries out. This non-perishable pliant material is leather. It is tanning which actually makes leather and is an important part of the Leather Industry, but it is not by any means the entire Leather Industry which in fact consists of the following component parts :—

(1) Flaying, collection and curing of hides and skins.

(2) Collection and preparation of tanning materials.

(3) Tanning or manufacture of leather.

(4) Manufacture of leather shoes.

(5) Manufacture of other leather goods besides shoes.

You may ask, and ask very pertinently too, specially in this country as to what Leather Industry has got to do with the University. You will say that you know about hides and skins. They are bad-smelling things at the sight of which you plug your nose with the end of your *dhoti*, *chadar* or handkerchief and run away from them. As regards tanning, shoe-making or the manufacture of leather goods, these are *chamars*' and *mochis*' jobs with which you University men can have no concern. Why have I come here to talk to you about the nasty *chamars*' job and defile the sanctity of this high temple of learning? Do I suggest that this industry can offer you careers?

Yes, I do suggest the Leather Industry can offer you careers—not only that, it needs your services.

You are University students. You have been instructed in various sciences. Some of you have gone through a commercial course. What is the utility of the training that you have received? If you say that you will teach other students the things that you have learnt, you will form yourselves into a community the members of which live by taking one another's washings. That is absurd and society will not thereby progress. The real object of your learning is that you should apply your knowledge in the practical field, in industries and commerce. You learn chemistry, physics, zoology, bacteriology, accountancy, etc., with a view to their industrial and commercial application.

Now let us see if Leather Industry gives you scope for the useful application of your scientific knowledge.

It does, and does to a very large extent. The Modern Leather Industry is not the *chamars*' and *mochis*' handicraft. The old craft has been metamorphosed into a highly scientific vocation by the application of the very sciences the knowledge of which you University men have acquired. This metamorphosis has been done in the West, in Europe and America, where scientists have taken this industry up in their hands and have effected such improvements and changes both in its technical and commercial aspects that the modern Leather Industry bears hardly any resemblance to the old *chamars*' and *mochis*' profession.

Such improvement has not been done yet in our country to the same extent as in the West. The reason is partly that you and men like you have not come forward in sufficient number to put your shoulders to the wheel of the Leather Industry.

In India it has been left from time immemorial in the hands of *chamars* and *mochis* who have been and still are poor and illiterate. Over and above these handicaps they are a depressed community whose profession is looked down upon by the higher castes. They have been denied the light of education, the advantage of capital and

the lead of their educated and moneyed countrymen. The result is that they have not been able to improve and modernize their craft and are still pursuing those indigenous processes which have been handed down to them by their forefathers from generation to generation. They have made no progress and as rest is rust they have rusted and are nearly worn out. The leather and leather goods they make by their traditional methods do not satisfy the modern taste and they have been practically ousted from their caste-profession and have been compelled to adopt agriculture to eke out a miserable existence in that already overcrowded field of work.

Modernization of the Industry is Needed

The Indian Leather Industry needs modernization to bring it into line with that of the civilized countries of the world. And who is to undertake the task ? It is you who have to take up the technical side of it and our capitalists have to provide its finance. I am not addressing the capitalists to-day and so I will leave the financial aspect of the industry alone in this lecture and confine my remarks to its technique, in the working out and execution of which your services are needed. In the rendering of these services lie the prospects of careers for you in the Leather Industry.

Technical Side of the Industry

I will take the various branches of the industry one by one and try to show you how you can apply to them your scientific knowledge, your disciplined mind, your powers of observation, your spirit of investigation and your capacity for research.

1. *Flaying, Collection and Cure of Hides and Skins.*—Leather Industry depends for its raw materials upon hides and skins of the domestic animals, *e.g.*, buffalo, cow, goat and sheep. The quality and commercial value of the final leather are greatly influenced by the quality of the raw hides and skins which again depends upon various factors, such as (1) Breed, (2) Feeding, (3) Care of livestock, (4) Prevention and cure of the various skin diseases to which animals are subject, (5) Keeping the animals free from ticks, mites, warbles and several other insects which attack them and damage the skins, (6) Timely and good flaying avoiding cuts and knife marks on the skins, (7) Prompt and efficient curing of hides and skins so as to preserve them from putrefaction until they are tanned.

To improve the available hides and skins of India with a view to increasing their commercial value and to making as good a leather from them as possible, each of these factors requires scientific attention, treatment and control. If you study the defects of Indian hides and skins closely, you will

find that they are to a great extent preventible. But it requires educated men, with imagination and the necessary scientific training to realize the enormity of economic loss caused by the defects, to fully understand the nature of the defect-producing factors and to apply remedies for their checking and elimination. Inferior breeds of livestock can be proved by crossing with superior ones. There is no earthly reason why India should put up with poor breeds of livestock when science can improve them. Systematic investigations in the field of animal husbandry will not only improve our livestock but also find fodders which are best adapted for their nourishment. Attention of the educated men in this country should be directed to cattle farming and sheep and goat rearing not for the sake of their hides and skins but for milk and meat. But educated supervision will lead to an improvement of the hides and skins also. It is expected to prevent cattle branding, pricking the hides with sharp nails struck on to the goading sticks and such other injuries caused to the hides by the cruel maltreatment to which cattle are subjected by the unimaginative and ignorant farmers and herdsmen who do not realize the agony they produce in the animals and the economic waste they cause by damaging the hides. Many skin diseases of animals can be prevented by bathing the animals occasionally and by application of antiseptic ointments before wounds go far enough to damage the skin.

Entomological studies of the life histories of animal ticks, mites, warbles and other pests will give a clue to their destruction and prevent the damage done by them to hides and skins. Flaying under intelligent control will result in a better work and prevent irreparable damages caused by cuts and scores. Curing of hides and skins is largely a chemical process and chemists can ensure its efficiency by their supervision and also improve the existing methods by their researches.

I will illustrate the importance of such research by referring to the damage done to Indian hides and skins by the warble flies (hypoderma lineatum, hypoderma bovis and hypoderma crossi). These flies lay their eggs on the cattle which develop into larvæ. In some way which is still not definitely known the larvæ enter the body of the animal and come up to the region of its backbone, and, when they grow to the size of a fly, bore holes through the skin and escape. These holes ruin the best portion of the hide and reduce its commercial value by 50 to 75 per cent. India loses several lakhs of rupees annually by the damage done to the hides by warble flies. This loss can only be stopped by the study to the life history of the flies and discovery of a method of killing them before they can bore the hides. Such study has been made in Germany and Denmark and the cattle of these countries have been freed from the pest. The hides of those countries have

also been improved. The cattle of Bengal are infested with ticks which appear to belong to the same zoological species as spiders, scorpions and mites. They attach themselves to the body of the cattle, suck its blood and prick the skin. The hide of a tick-infested cattle is greatly damaged and reduced in value. Bulk of the cattle hides of Bengal are so depreciated that if these hides were not tick-infested they would make excellent leather. Nothing has been done as yet to study the life histories of the cattle ticks of Bengal and to discover means of eradicating them and thus save the province from a loss of several lakhs of rupees annually. Here there is a fruitful field of work for those who are zoologists and entomologists among you.

I can mention many other matters in the raw hide and skin trade which require scientific investigation, control and treatment, in the absence of which the trade is suffering badly and there is great economic loss. Fame and fortune await those who will succeed in stopping this loss by discovering suitable remedies. I will now pass on to the second branch of the Leather Industry.

2. *Collection and Preparation of Tanning Materials.*—For curing hides and skins, for tanning and for finishing leather shoes and leather goods, various materials are required. These may be grouped under the following heads :—

(1) Vegetable tanning materials.

(2) Tanning extracts.

(3) Manufactured chemicals.

(4) Specialty products.

For the satisfactory production, manufacture and supply of the materials of all these groups enterprising educated men are needed.

(1) *Vegetable Tanstuffs.*—In Bengal we have got babul bark, goran bark and myrobalans which are at present used in large quantities in commercial tanning. These are simple unattractive things but are of great economic importance. No attempt has as yet been made for the systematic plantation of these trees, stripping of their barks, collection of myrobalans under optimum conditions so as to get the highest possible percentages of tannins in them, drying and storing them properly so as to conserve their tannin contents and keeping their colour good and fixing their commercial standards on a tannin basis. At present these trees occur in jungles and forests some of which are so far away from railway and river communications and so widely scattered that the commercial exploitation of all the trees that exist are uneconomical. Barks are collected from those places only which are near the tanning centres and close to the routes of communication. They are collected and marketed in a casual and haphazard manner by uneducated men who do not understand how to improve and maintain their quality and do not realize the bearing and potentialities of the business. Their qualities vary and tanners do not

have much confidence in them. The defects can be remedied and a large and profitable trade in these vegetable tanstuffs can be developed if educated men take up the business and conduct it with the required technical knowledge, intelligence and enterprise. Besides the three tanning materials which are now commercially used, there may be many more in the forests and jungles which can be brought to commercial utilisation by scientific investigation. At present, as there is no regular supply of vegetable tanstuff from Bengal, the tanners in Calcutta import large quantities of babul bark from the Punjab, the supply of which is more regular and the quality more reliable and uniform than that of the Bengal bark. There are several vegetable tanstuffs of commercial importance produced in other provinces of India and other parts of the world. Educated enterprise is needed to try the possibilities of their production by plantation in Bengal.

(2) *Tanning Extracts.*—At present myrobalan extract is made in Bengal in two factories only, one at Raniganj and the other at Khargpur. No other tanstuff has as yet been discovered in the province which is suitable for the manufacture of a satisfactory commercial tanning extract and research by trained men may lead to such a discovery.

(3) *Manufactured Chemicals.*—Several chemicals are used in the tanning industry among which

the most important are bichromate of soda and sodium sulphide which are used in large quantities. Their manufacture is purely the chemists' business and a number of them would be able to find employment if their manufacture were developed in the country.

(4) *Specialty Products.*—Quite a large number of these, such as artificial bates, ready-made chrome liquors, fat liquors, dubbings, pigment finishes, leather polishes and lacquers, shoe paints and dressings are used in the Leather Industry. Most of these are at present imported. Their manufacture is within the chemists' province and if the chemists turn their attention to it they will be usefully and profitably employed. Then there are the coal-tar dyes which are used for dyeing leather. The manufacture of these dyes is a big chemical industry. We import into India about three crores of rupees worth of these dyes annually. Surely the large number of organic chemists that we have in Bengal can take charge of their manufacture if capitalists take steps to start the industry in this country. It is high time that they did so.

3. *Tanning and Manufacture of Leather.*—I now come to tanning or manufacture of leather and will explain to you the importance of the knowledge of chemistry, microscopy and bacteriology in modern tanning.

First of all, a clear idea of the anatomical structure of hides and skins is necessary. To get this

knowledge you need a microscope, have to cut sections of hides, mount them on slides and examine them under the microscope. If you do that, you will find that an animal hide consists principally of two layers—edipermis and corium. You will find in the epidermis various structures such as hair, fat glands, sweat glands, involuntary muscles, and cells with nucleus and without nucleus. You will also notice that underneath the epidermis lies the corium or the true skin which is a network of interlacing bundles of white fibres cemented together by an interfibrillary substance. At the top and bottom of the corium there is another kind of fibres which are called yellow or elastic fibres.

Having gained this knowledge you have to keep the picture of the structure of the hide always in your mind to be able to follow the tanning process intelligently.

The tanning process consists of a number of operations each of which is designed to produce certain effects on the hides and skins. Some of these operations are mechanical while the most important ones are either chemical or bacteriological. Although the mechanical operations are performed by workmen and machines, they have to be supervised by trained foremen who can do better if they have the knowledge of the science of tanning and have accurate ideas of the effects that are to be expected from these opera-

tions. The chemical and bacteriological operations have to be controlled by men who have the knowledge of these sciences if the best results are to be obtained. These operations are carried out in aqueous solutions or emulsions of suitable materials which have the power to produce the desired results on the treated hides and skins. The concentration, temperature and pH of these solutions, or liquors (as they are called), are to be intelligently controlled and maintained at optimum points. The durations of the treatment of the hides and skins in the various liquors are to be kept at the periods which have been found by experience to have produced satisfactory result. It often becomes necessary to change the durations of treatment according to seasons. Even the intensity of the agitation of the hides and skins in different baths has to be controlled, because both more and less agitation than that of the optimum intensity have been found to be harmful. The effects of the different operations are intimately correlated with one another and those of one operation affect the result of the subsequent ones and ultimately reflect on the nature and quality of the final leather. The quality of the final leather is due to the combined effects of the different operations which must be skilfully balanced to produce the best result. In this balancing lie the art of leather manufacture and the skill of the artist, the scientific tanner.

Operations involved in Tanning

The operations involved in tanning are technically called, in tanners' parlance, (1) Soaking, (2) Depilation or Liming, (3) Deliming and Bating, (4) Pickling, (5) Tanning, and (6) Finishing. From a brief outline of these which I propose to give you, you will be able to realize the various chemical and bacteriological reactions involved in them.

(1) *Soaking.*—As already mentioned, hides and skins are cured to preserve them from putrefaction before they reach the tanner. Curing is not necessary if hides and skins are sent to a tannery within a few hours of their flaying. But this is not always possible, as tanneries are situated far away from the centres of collection of hides and skins. Curing is done in India by three methods :—

Wet-salting.—In this common salt is applied to the flesh side of hides and skins which are kept in the wet condition.

Dry-salting.—In this a saline earth containing mostly sodium sulphate and some amount of sodium chloride is applied to the flesh side and the hides and skins are dried out after applying this preservative.

Drying.—In this hides and skins are simply dried out.

The tanner thus gets the hides and skins in four conditions, *viz.*, fresh or green, wet-salted,

dry-salted and dry. The object of soaking is to cleanse the hides and skins and to bring them back to the soft and wet condition in which they were when they were taken off from the bodies of animals by flaying. In the case of fresh hides only the adhering dirt, dung and blood have to be removed which is done by washing the hides and skins in 2 or 3 changes of water. With regard to wet-salted hides the curing salt is to be removed which is also done by washing in water. For dry-salted hides not only the curing saline earth is to be removed but they have to be wetted back and softened. Similarly dry hides have to be softened by wetting. Dry and dry-salted hides cannot be adequately wetted by dipping in water alone, because drying makes them so hard and horny that they do not absorb the water quickly, and if they are kept too long in the soaking water they putrefy. The absorption of water by the dry hides and skins has to be accelerated by such agents as have that power. Alkalies like sodium sulphide and caustic soda have this power and are added to the soaking bath. Usually 0·2% sodium sulphide or 0·15% caustic soda solution is used for soaking. These alkalies induce the absorption of water by the hide fibres by increasing the osmotic pressure of the solution absorbed by the hide in relation to the osmotic pressure of the solution outside the hide in the soaking bath. The pH of the alkaline soak liquors should be

from 7 to 8. Acids also help soaking. In acid soak liquors the pH should be about 4. To check the growth of bacteria in the soaking bath chlorine is sometimes added to it. 10 parts of chlorine per million parts of the soaking water have been found by Wilson to reduce bacterial growth by 89 to 95 per cent.

Depilation.—It has already been said that the hides consist mainly of two layers, *viz.*, the epidermis and the corium. Now for most varieties of commercial leather, excepting furs which are tanned or dressed with hair on, the epidermis layer is to be removed as it is not required for making leather. This is effected by the process of depilation. It is done either by a bacteriological process called sweating or by the action of a mild alkali like lime assisted by stronger depilants like sodium and arsenic sulphides. The epidermis chemically belongs to the class of proteins known as keratins. The process of sweating is used now-a-days only for removing wool from sheep skins, because wool is a valuable product which would be damaged if it came in contact with alkalies and sulphides. In sweating only the roots of the wool are attacked by bacteria whereby the wool is loosened to a sufficient extent for pulling off. Very careful check on the temperature and duration of sweating has to be maintained so that the action of bacteria may not extend to the corium damaging the latter.

For most other skins alkaline and sulphide depilation is taken recourse to. Formerly a saturated solution of lime only was used for the purpose, but it was found that the action of lime was too slow and it took too long to loosen the hair. If the hides were kept too long in the lime liquor the substance of the corium was also attacked and dissolved both by the hydrolytic action of the caustic lime and also by the bacteria which always develop in a lime liquor in which successive packs of hides have been immersed for some time. The older the lime and the larger the numbers of packs of hides and skins passed through it, the more the bacteria that grow in it and the more is the solution of hide substance by it. The organic matters dissolved by the lime liquor are a favourable medium for the growth of bacteria. So in lime liquor both chemical and bacterial actions take place. For most varieties of leather this bacterial action resulting in the solution of the corium substance is very harmful and is sought to be avoided. This has been done by the addition of sodium and arsenic sulphide to the lime liquor. Sometimes lime is mixed with these sulphides into paste which is applied to the hides and skins. The sulphides have very strong action on the hair roots which are quickly attacked and dissolved loosening the hair very rapidly. Weak solutions of sodium sulphide only attack the hair roots but stronger solutions attack and dissolve the hair itself reducing

it to pulp. Sodium sulphide when dissolved in water breaks up into caustic soda and sodium sulphhydrate producing OH′ and HS′ ions ; when these ions are in equal proportions, the unhairing action is the best. From chemical researches done it appears that the keratin is at first attacked by the HS′ ion and is rendered more easily hydrolisable. This altered keratin is then reacted upon by the OH group, hydrolysed and rendered soluble.

Depilation or liming does not loosen the hair only and remove the epidermis but has also some important reactions on the fibres of the corium. The fibre bundles are separated into individual fibres and the latter are split up into their component fibrils. The cementing substance lying between the fibres is to some extent dissolved whereby the texture of the corium is opened out. This is necessary in order that in the subsequent tanning process the tanning agent may have an easy access into the pelt and be absorbed adequately by each individual fibre and fibril which is essential for thorough tannage.

The fibres also swell by absorption of water and the whole corium plumps up and becomes thicker. This plumping is required to produce such thick and firm leather as sole, belting and harness, etc., and has an important bearing on all types of leather. Its degree has to be controlled to suit a particular type. The swelling of hides and skins

belongs to the physical chemistry of proteins and is guided by its laws.

The alkalies, lime and caustic soda also convert the saponifiable natural greases of the hide into soaps which are subsequently removed mechanically in the process called scudding. If this natural fat is not removed, the finished leather cannot be glazed sufficiently to produce the uniform gloss which is desired in several varieties of finished leather.

Deliming and Bating.—Limed hides contain lime, a part of which (about 2/3rd) appears to be chemically combined with the hide fibres. The chemical substance of the corium fibres is the protein collagen. Collagen being of the polypeptide type is amphoteric and capable of combining with both alkalies and acids. Lime, therefore, combines chemically with the collagen forming calcium collagenate. Both the mechanically absorbed and chemically combined limes are to be removed from the pelt.

For the production of soft and comparatively thin leather the swelling of the pelt caused by liming is also to be pulled down. The interfibrillary or the cement substance between the fibres, which has been partially removed in the liming process, has to be further dissolved and eliminated. The amount of this substance to be removed depends upon the degree of softness

desired in the final leather and, therefore, varies with different classes of leather. For soft stretchy leather the elastic fibres are also to be dissolved. The disintegrated hair roots, hair follicles, lime soap and the natural dirt of the skins which are technically called " Soud " were not all removed by liming. They are further loosened and finally eliminated totally by the deliming process. So the objects of deliming and bating are—

(1) Removal of lime;
(2) Pulling down of the swelling;
(3) Solution of the cement substance and yellow fibres; and
(4) Loosening of the soud.

Lime is dissolved out by weak solutions of acids or salts of ammonia. Acids like lactic, acetic, butyric and boric and sometimes even hydrochloric are used. Ammonium salts like ammonium chloride and ammonium sulphate are employed. They enter into chemical combination with both the mechanically absorbed and the chemically combined lime of the pelt, producing soluble lime salts which are washed out after the reaction is complete. The other three objects, *viz.*, pulling down of the swelling, solution of cement substance and loosening of the soud cannot be achieved by chemical means. For these bacterical action is necessary and proteolytic and lipatic enzymes are employed. This bacterial process is

called Bating. The action of the enzymes is greatly influenced by temperature, concentration and the pH of the liquor. The action of the enzymes in bating is at its optimum at a temperature lying between 35° and 40°C and at pH value of 8·4. The concentration of the enzymes to be used depends upon the nature of hides and skins under treatment and the class of leather to be turned out. The same remark applies to the duration of bating. Some skins, *e.g.*, goat skins, are by nature hard and coarse, and to make them soft and smooth to an adequate extent, a higher concentration of enzymes and a longer time are required than, for instance, in the case of sheep skins which are naturally soft and tender. The hardness and coarseness of the skins of different breeds of goats again differ and the treatment in bating has to be adjusted suiting a particular class. A Good deal of care and scientific control is necessary in the bating process to get a satisfactory result.

Pickling.—After the pelt has been satisfactorily delimed and bated, it is treated with a solution of sulphuric acid and salt if it is to be chrome-tanned by the one-bath process. The treatment is called Pickling. It gives the pelt a preliminary tannage and brings it into an acid condition which is necessary for satisfactory tanning.

Tanning.—Five different processes of tanning are commercially used, *viz.*, (1) Vegetable, (2) Chrome, (3) Alum, (4) Oil, and (5) Aldehyde.

Vegetable Tanning.—In this the delimed and bated pelt is treated with infusions of vegetable tanning matters in water. Many vegetable substances, barks, fruits, leaves, roots and wood, contain tannins, which being soluble in cold water are easily extracted. The aqueous extracts of tannins are the tan-liquors in which the delimed and bated pelt is steeped. The tan-liquors are made of gradually increasing concentrations of tannins. The pelt goes first into a weak tan-liquor and is moved forward to stronger and stronger ones at regular intervals of time. The tan-liquors not only contain tannins but also organic acids produced by the fermentation of sugar and starch present in the tanstuffs. These acids give acidity to the tan-liquor which is important to the tanning process. For the manufacture of satisfactory leather the tannin concentration and acidity of liquors have to be graded and the ranges of concentrations and acidities found to be satisfactory for a particular class of leather have to be scrupulously maintained by regular checking. This cannot be done unless the tanner has chemical knowledge. In the tan-liquors two different phenomena are involved as the tannage proceeds: first, the diffusion of the tan-liquor into the pelt, and the second, the absorption of the tannin by the already separated fibrils of the corium from the diffused tan-liquor whereby they are coated with the tannin. The tannin is irreversibly

absorbed by the fibres whereby a profound change in the pelt is brought about. This change consists in the transformation of the putrefiable pelt into the imputrefiable leather. Whether this is the result of chemical combination between the hide fibre and the tannin or mechanical deposition of the latter on the former is still more or less a matter of speculation. The corium fibre as already pointed out is chemically the protein collagen which can act both as an acid and as a base. The chemical constitution of all the tannins is not yet fully known. The constitution of one tannin, *viz.*, gallo-tannic acid, has been established by the researches of Emil Fisher and his collaborators. It is now recognised to be an ester formed by the combination of one molecule of glucose with five molecules of digallic acid. It is a penta-digalloyl glucose. But tannins from different sources differ considerably in composition and properties, and the constitutions of many tannins are still not sufficiently clear. It is, therefore, difficult to say how exactly tannins combine with collagen. It appears, however, that vegetable tannage is more of a colloidal or physical character than purely chemical. Tannins in tan-liquors are colloidal and not ionic and the colloid tannin particles are negatively charged. It has also been proved that collagen or the hide fibre in a faintly acid solution such as that of the tan-liquor takes a positive electric charge. These two, therefore, attract each

other and the taninns are precipitated on the fibres.

Besides tannins and acids which are soluble, non-tannins and many insoluble matters known as blooms and reds, which are chemically known as ellagic acid and phlobaphenes respectively, are present in the tan-liquor. These non-tannins and insoluble matters are also deposited on the hide fibres and in the spaces between the fibres and give weight, firmness and solidity to the leather.

Chrome Tanning.—Leather for shoe uppers is now-a-days manufactured mostly by chrome tanning. There are two processes, *viz.*, the two-bath and the one-bath. According to the former the delimed and bated pelt is treated in the first bath which is made up of 5% bichromate of soda and 2½% hydrochloric acid on the pelt weight. After the pelt has absorbed the chrome in the form of chromic acid, it is treated in the second bath. The second bath consists of a solution of 20% hypo and 10% hydrochloric acid reckoned on the pelt weight. In the second bath the chromic acid or chromic anhydride is reduced to a basic chromic salt on the hide fibres which effects the tannage. The chemical reactions in this bath between chromic anhydride hypo and hydrochloric acid are complicated, and although a good deal of light has been thrown on them by the researches carried out so far, they cannot be regarded as being fully elucidated. Further research is necessary. Now-

a-days the shoe upper leather, glace kid, is manufactured by this process to a very large extent.

In the one-bath process of chrome tanning the bated pelt is first pickled as already stated and then treated in the one-bath chrome liquor. This is a solution of basic chromic sulphate which is prepared either by adding soda to a solution of chrome alum or by reducing sodium or potassium bichromate by a suitable reducing agent like sugar or hypo in the presence of an amount of sulphuric acid which is less than what is necessary for producing normal chromium sulphate. The pelt is treated in this basic chrome liquor for a few hours until the chrome salt strikes through the pelt and is irreversibly absorbed by the hide fibres. When this is accomplished, the pelt is transformed into leather, a change which is marked by the capacity of the tanned pelt to stand boiling in water for 5 minutes without hardening and shrinking in area. The shoe upper leather known in the trade as box and willow sides and box and willow calf is manufactured by this process.

The most important point in the one-bath process of chrome-tanning is the basicity of the chrome liquor by which is meant the proportion of chromium to acidic SO_4 in the molecule of the basic sulphate. In the normal chrome sulphate this proportion is 52 : 144 and the proportion of SO_4 in basic sulphates lies under 144. The best range of basicities for tanning is between

the figures 103 and 88. The basicity has to be adjusted to suit the class of leather under manufacture. A good deal of chemical control is necessary in chrome tanning both in the preparation of the liquors and in the conduct of the tanning process. Methods for determining the basicity of liquors and controlling the tanning process have been worked out, but it requires a Chemist to understand and use them efficiently.

The combination of chromium with the hide fibres appears to be also of a colloidal nature like the combination of vegetable tannins and the hide fibres.

The basic chrome salts form chrome complexes in the liquor which again unite with one another to produce bigger complexes which are of a semi-colloidal nature. These semi-colloidal or (as they are called) olated chrome complexes are positively charged with electricity which combine with the negatively charged collagen fibres.

Alum and Aldehyde Tannages

White leathers are made by alum and aldehyde tannages which also involve complicated chemical reactions.

Oil Tannage

Chamois leather is made by tanning the flesh splits of sheep and goat skins with an

oxidisable oil, *e.g.*, cod oil. The process involves introduction of the oil into the skin fibres and its oxidation on the fibres by atmospheric oxygen and final removal of the unabsorbed oil by washing the skins with soap and soda solution. The reaction is of a chemical nature, and chemical control is helpful for the production of a satisfactory leather.

Finishing of Leather

After tanning by one of the above described processes the leather is finished. In finishing it is subjected to different treatments to make it suitable for the particular object for which it is required. As leather is needed for multifarious purposes, the finishing processes are also extremely varied. It is out of place here to describe them all. Broadly speaking, for chrome shoe upper leather, finishing consists in shaving, neutralising, mordanting, dyeing, greasing (fat-liquoring), drying, mechanical softening by an operation called staking, stretching out by nailing on frames or boards, making flesh side velvety by an operation called buffing, seasoning, glazing and graining. Vegetable tanned light leathers are shaved, dyed, glazed and sometimes embossed into innumerable designs by pressing with engraved plates or rollers by an embossing machine. Vegetable tanned heavy leathers like harness, saddlery and belting are shaved,

bleached, greased and set out. Sole leather is bleached, lightly oiled up, dried and compressed by machine to make it hard. In all these operations various materials, such as bleaching agents, mordants, fixing chemicals, dyes, fat-liquors, greasing mixtures, pigment finishes, gloss-giving dressings, etc., are employed. In the preparation of these as well as in their successful application not only a good deal of experience but also chemical knowledge is necessary.

Importance of Microscopy in Leather Industry

In recent years microscopic observations of the texture of the hides and leather fibres, their angle of weave and extent of separation length, thickness, etc., have been found to be very useful in controlling the operations involved in leather manufacture and judging the quality of leather. Side by side with the chemistry of tanning a new technique of the microscopy of Leather Manufacture has developed.

The Manufacture of Leather Shoes

Modern shoe manufacture involves an accurate knowledge of the anatomy of the human foot, the differences and peculiarities of the feet of the people of different countries, ideas and artistic capacity for making new designs, training in

mechanical engineering to understand the working of and to operate a large number of machines of different types used in modern shoe manufacture, knowledge of leather required for the uppers, linings and soles of shoes and of a number of other materials used in the shoe industry. Several types of dressings, polishes and lacquers are required in finishing the uppers and soles of shoes. These are chemical preparations for the making of which services of chemists who have specialized in making these articles are necessary.

Technical Training in Leather Industries and the Bengal Tanning Institute

From what I have said you will have realised that the Modern Leather Industry in all its branches is highly scientific which requires the services of scientific men. But it is also very technical. The knowledge of pure science that you get in your Colleges and University, although extremely helpful, is not sufficient for the industry. This knowledge is a good foundation on which to build the superstructure of the technique of the leather industry. To be really of service to the industry and to make a career in it you will have to supplement your University studies with specialized training in leather industries. This you can do by going through the courses in tanning and shoe and leather goods manufacture at the Bengal Tan-

ning Institute. At present the tanning course is one of 2 years and that of shoe and leather goods manufacture of one year. In the former the applied science of leather manufacture and practical tanning are taught through lectures, laboratory work and actual manufacture of leather at the Demonstration Tannery attached to the Institute. In the latter, manufacture of shoes and leather goods is taught through lectures and practical work in the workshop. At the end of the course examinations are held, on passing which the Institute's certificates are awarded.

Proposed University Diploma in Tanning

The present two years' tanning course will be extended to three years from the next session beginning in August, 1939. Negotiations are in progress to get the institution affiliated to the Calcutta University and to award a University Diploma in Tanning at the end of the three years' course. Those of you who feel interested in leather industries are invited to visit the Bengal Tanning Institute, with which I am also connected where you will get more information about its courses than what I have been able to give you in this lecture.

Research Work at the Bengal Tanning Institute

The Institute not only trains students but also carries out researches in tanning to improve the

qualities of those varieties of leather which are being manufactured already in the country so that they may be brought up to the Western standards and to introduce the manufacture of such types of leather from local hides and skins as are not yet produced in Bengal.

Development Already Made in the Industry

Considerable development has been made in the leather industries of this province in which the Bengal Tanning Institute has played an important rôle. Manufacture of several varieties of leather has been introduced, pioneered and established on a commercial basis. Their qualities have been improved so much that they have not only ousted foreign leather from India to a very large extent but some varieties of them are being exported from Bengal and other parts of India to Overseas markets where they are finding a good sale. As an illustration I mention to you about one class of leather in the manufacture of which phenomenal advance has been made in Calcutta, *viz.*, the shoe upper leather known in the trade as Box and Willow sides which are made from cow hides by the chrome-tanning process. Twenty-five years ago there was only one tannery in Calcutta which used to make this leather and its output was not worth more than Rs. 24,000 annually. But to-day there are several tanneries engaged in its manufacture and its annual

output is valued at about Rs. 40 lakhs. A considerable proportion of this leather is now being exported to England and other countries. Besides box and willow sides, India also exports other varieties of leather such as box-calf, glace-kid and half-tanned hides and skins. The value of the total export of leather from India stands now at about Rupees seven crores yearly.

In the manufacture of shoes and leather goods definite progress has been made. Shoes of different types, popular designs and of durable quality are made and the necessity of wearing imported shoes has been greatly reduced. Various classes of leather goods such as trunks, suit-cases, attache cases, portfolios, purses and a host of leather articles for industrial use are made locally.

The Possibilities—Foreign Markets

But as yet we have only touched the fringe of possibilities in leather industries in India. The resources of our raw hides and skins are immense and we are on a vantage-ground with regard to them in relation to the leather-consuming countries of the world. Europe and America must have large quantities of leather for making shoes for their people, cent. per cent. of whom have to wear them for climatic and social reasons. Highly industrial as they are they also require leather for industrial purposes to a very large extent. They

have not, however, sufficient hides and skins to meet their leather requirements in consequence of which they have to import them from those countries which have a surplus. India is one of the few countries in the world which have a surplus of hides and skins. She is, therefore, in a position to dictate in what form she will supply them. It is to India's interest to tan all the available hides and skins in India and export the tanned leather. Tanning nearly doubles the value of hides and skins; so by exporting tanned leather India will get almost double the amount that she gets by exporting raw hides and skins. Formerly most of the hides and skins exported from India were in the raw condition, but as the Indian tanning industry is developing, we are also exporting more and more tanned leather. But large quantities of raw hides and skins are still exported from India, and our ambition is to stop this export altogether and replace it entirely by the export of leather and leather goods. If we are to realize this ambition, we shall have to develop our leather industries to a much greater extent than we have yet been able to do. Raw materials are easy to sell but not so the finished goods. To make the latter saleable they must be of a type and quality which are acceptable to Overseas buyers. Persistent and well-planned efforts have to be made to improve the technique of manufacture so as to bring the standards of local productions up to the Western

level. The better the brains and the scientific technical training of the men in the leather industries of India, the greater is the chance of the realisation of our ambition and the sooner will we reach the goal. Our past experience is encouraging which holds out hopes for the future.

We are sure that our raw hides and skins can make such leathers as Overseas markets want, otherwise foreign countries would not have imported Indian hides and skins. The question is whether we can make them in India. For some varieties of leather we have demonstrated that we can make them of an exportable quality and we are making and exporting these. We have to improve their quality and increase their production still further. We shall also have to try our hands at the manufacture of several types of leather which are known to us to be manufactured from Indian hides and skins in foreign countries but have not yet been produced in this country. If we succeed in making the right types of leather, we will find markets for them abroad.

Internal Market

If the possibilities for our leather and leather goods are great in foreign markets, they are not less so in India. The use of leather shoes and leather goods among the civilian population is already large and is increasing with

the spread of education, the rise in the standard of living and the industrialization of the country. Military requirements for leather are also considerable.

From the picture I have attempted to draw of the Indian Leather Industry I hope you will realize that it is no mean industry and that it offers ample scope for careers to a large number of University men. The scope is there but what is wanted is for our capitalists to come forward and start up-to-date tanneries, shoe factories and leather goods making workshops and for a number of our educated youngmen to take up this industry as their vocation. If we Indians do not do this, people from abroad will come and start these factories here, as, for instance, Messrs. Bata & Co have already done. As a matter of fact the enterprise of Bata should be an eye-opener to us all.

SMALL INDUSTRIES

NAGENDRA NATH RAKSHIT

Tatanagar Foundry Co., Ltd.

I am very glad that, by asking me to address you on small industries, the University authorities have given me the opportunity I had long been looking for—to speak publicly on a subject which is very dear to my heart. My almost life-long association with indigenous industries, both large and small, has given me some intimate knowledge of the real difficulties and hindrances that lie in the way of our success in industrial enterprises, and I will take this occasion to tell you some of my views and suggestions on some important aspects of the problem that have not so far been sufficiently emphasised by Indian economic thinkers.

In speaking on Small Industries, I do not, however, intend to enter into the academic discussion of the economic theories and principles involved in the question, but will mainly keep myself confined to the consideration of those practical obstacles and undermining factors that are persistently tending to baffle the small industrial undertakings in our country, and which have got to be removed before we can hope to see a flourishing growth of Indian industries. But here I feel I ought to apologise for a limitation from

which my address may seem to suffer. My outlook on industrial problems may, I am afraid, seem to be somewhat tinged with what is now-a-days characterised as provincialism, because it is chiefly about Bengal that I want to talk to you to-day. In dealing with the question of small industries, therefore, I shall have constantly to refer to, and draw inferences from, the industrial conditions prevailing in Bengal; but this is, after all, quite natural and perhaps unavoidable, for, it is from Bengal, the land of quick initiatives and bold ventures, that I have mainly gathered my knowledge and experience of small industries. Moreover, the little charity I may possess, began quite early at home, and still centres round the land of my birth and growth, and nothing, to-day, is dearer to me than the cause of a healthy economic regeneration of Bengal, where the terrible effects of an all-pervading and soul-killing poverty are every day becoming more and more evident in all spheres of our present-day life. Development of small industries, which I believe to be the only way to remove the existing economic distress, will, therefore, form the main topic of my discourse this afternoon, but I think that, in thus narrowing the field of my vision to the consideration of the problem of industrial growth and expansion in Bengal, I will not be going against wider national interests of India, for, what is true of Bengal, is, with minor local modifications, also true of India as a whole.

My provincial patriotism is, however, the least of the reasons for marking out Bengal as the exclusive and immediate object of my reference and interest. 'As the seed-plot of national industries, her name deserves special mention by every student of our industrial history, and any scientific and practical study of indigenous industries must remain incomplete without some knowledge and understanding of the industrial movement of Bengal. Bengal's role in the industrial evolution of India is almost as great as her part in politics, and so far as the small industries are concerned, Bengal has been the fertile home of innumerable pioneering ventures for the first quarter of the present century. In no other part of India has the growth of such industries been quick and numerous, and no other people than Bengalis have shown such peculiar aptitude for this kind of industrial enterprises. That the minor industries have a definite place and importance in economic scheme of our country, was the invaluable contribution of Bengal to Indian industrial thought, and it was these weak, helpless and struggling industries of Bengal that have conclusively proved, not only the possibility of existence and development, but also the particular suitability of small industries to Indian conditions.

Minor industries in Bengal may be broadly divided into two classes: (*a*) Small Factories using power-driven machinery, and usually situated

in the suburbs of cities, and (*b*) Cottage Industries using little or no mechanical appliances, and carried on in the villages of Bengal. Although the physical characteristics of the two are a bit different, the underlying commercial incidents of both the classes are practically the same, and the remedial measures for the stabilisation of these two types are, in most of the points, identical. I will, therefore, for the sake of convenience, deal with them together.

Small industries of Bengal have a distinct characteristic and a special importance in the economic scheme of this province They are all, almost without exception, established and conducted by educated young men of the *Bhadralog* class, admirably fitted for their vocation by virtue of their necessary technical qualifications. This unique phase in the industrial life of Bengal started a little more than a quarter of a century ago, when the learned professions became overcrowded and the prospect of good services grew less and less year after year. The political agitation of the Partition of Bengal days awakened simultaneously in the people, not only a political nationalism, but also a new economic consciousness to develop various industries within the province, and generated a strong demand for indigenous articles. It was at that time that a strong impetus was given by the consuming public to the small-scale manufacture of various articles, and inspite of great financial

disabilities, Government apathy, and lack of financial backing by the public, small factories began to spring up all over Bengal in quick succession. The obstacles in their path were many and serious, but, urged with a sincere desire to develop the national industries, and goaded by strong economic forces, these industrial vanguards carried on with a wonderful painstaking courage. Very few of these old pioneering ventures, however, exist to-day in their original forms, because, like true pioneers, they have, by their death, prepared the way for others, but the start given by them has never ceased to grow, and new enterprises, like the phœnix, have risen out of the ashes of the old. Though weak and struggling, the small productive units possess a wonderful stamina to survive disasters. They suceeeded in overcoming the extraordinary pressure of the economic forces during the last world-wide trade depression, which crushed out of existence many big and well organised industrial concerns of the world. Even now, they are holding their ground against relentless competition from many powerful rivals, both foreign and Indian. The wonderful flexibility of these industries to adjust themselves to conditions, however adverse, is a quality found in a very marked degree in the character of these clever and intrepid organisers whose high-class scientific knowledge and technical training have given them a distinct advantage over other Indian manufacturers in this respect.

By a clever adjustment of European processes of manufacture to the peculiar Indian conditions, these small enterprisers have succeeded in reducing the cost of their production to the minimum, and not being profiteering sharks, they have never tried to keep a big margin of profit, even when possible, for themselves. But in reducing their cost of production they have not lost in efficiency. Although they have been working under unfavourable conditions, these minor industries of Bengal have built a business reputation for themselves, inasmuch as the quality of their articles is admitted to be in no way inferior to that of the products of the reputed Indian or foreign manufacturers. Many of these minor industries of Bengal are on the approved list of suppliers to the Government Stores Department and the superior quality of their products has always earned the commendation of responsible Government officials. When we consider the extreme difficulties, financial and otherwise, under which these industries have to labour, we cannot help admiring the courage and steadiness of these young business promoters. It is very much to be regretted that the real value of these weak, scattered and struggling industrial organisations of Bengal has very seldom been justly appreciated. Theoretical study of European economics has taught us to think in terms of big industries alone, and our whole industrial outlook has taken

a definitely Westernised bias, in so far as our faith in the potentialities of small industries cannot be said to stand for much. Whenever we think or talk about the industrial development of our country, we dream of transforming India into America or Germany. It is surprising why we should always look to America or Germany or Russia for our industrial inspiration and not to Japan, which has set the best brains of Europe a-thinking to-day and who, I believe, can teach us better practical lessons in commercial industry than all Europe put together. It is a pity that the immense possibilities of small industries have never been seriously investigated, and while the cottage industries of India have received some consideration from Indian economic thinkers, the small industries have been completely neglected.

The special importance of small industrial organisations in the economic and political structure of our country should never be lost sight of by the overjealous supporters of the big industries. The history of the political agitation in Bengal during the last ten years will make my point clear, to any one who would attempt to consider how far lack of employment and vocational responsibility have heen responsible for the discontent amongst educated Young Bengalies. The recent industrial scheme of the Bengal Government to find employment for the detenus, is a case in point. These

small industries have opened out fresh avenues of employment, not only to the educated middle-class youths, but also to a large number of labourers at the country side, and have thus helped to give some relief to the extreme economic tension created by the increasing number of unemployed men. Moreover, though the individual output of a small unit is not much, the total contribution of all these petty organisations, to the consolidated wealth of this province, is not at all negligible. And burdened as they are by innumerable disabilities, these small manufacturing concerns have great potentialities for economic advance. There is no insurmountable barrier between the large and small industries, whose boundaries constantly merge into one another, and a small industry may easily grow into a large one if proper facilities are given. These minor mechanised industries of Bengal, as I have already pointed out, are organised, controlled and financed by the middle-class youngmen, possessing high technical education and not infrequently good industrial training from factories of England, America, Germany or Japan. If these capable and qualified men of character and education are supplied with necessary facilities and patronage, they can easily expand into big industrial concerns.

But, above all, the small industries can, to a great extent, solve the problem of our appalling poverty. The real reason of the gradual

impoverishment of Bengal is that Bengalis are great consumers but very indifferent producers. They consume more than they produce, and the social wealth of Bengal is consequently going out of the province to enrich foreign manufacturers and non-Bengali businessmen. In order to stop this constant outflow of our wealth, we must try to manufacture as many of the articles of our use as possible, and thus replenish the dwindling economic resources of Bengal. It is on the development of small industries that the economic salvation of Beagal depends, and I do not think there is any other way.

Another consideration which weighs heavily in favour of such small enterprises, is that they are peculiarly suited to the existing conditions of Bengali life and character. The economic resources of the Bengali middle-class intelligentsia, from among whom such organisers usually come, are very much limited, and there are very few among them who can afford to invest more than a few thousand rupees at the utmost. This limitation in our capital resources makes it almost obligatory for our youngmen to start their industrial career on a modest scale. Small industrial undertakings are not only safer, but are more practicable, and have a better prospect of success than big and large-scale manufacturing attempts, which, under present circumstances, are no better than a visionary " Holy Grail " that may lead us

to endless dangers and difficulties and, perhaps, to ultimate failure and ruin as well.

The Bengali character and temperament, too, fit in very well with such small business organisations. So far as my experience goes, I have always noticed that Bengalis shine best in individualistic proprietary business. Limited concerns or joint-stock companies do not fare very well in Bengali hands, and in most instances end in failure and disruption. When left alone to work without any check or hindrance from anybody, the Bengali industrial genius shows itself in all its brilliance, and the wonderful powers of organisation and efficient management of a Bengali businessman come into full play only when he is entrusted with the complete control over the whole of the affair. This temperamental characteristic makes us eminently suited to small-scale manufacture, where individual control is possible and perhaps necessary.

Besides that, Bengalis have been found to possess a peculiar knack or aptitude for whatever is technical and scientific. This may be an inherited instinct, for Bengali artisans have long been noted for their skill and craftsmanship ; but the fact is undeniable that Bengalis have succeeded very well in those industries in particular which require highly scientific knowlege and special technical skill, as, for example, the Chemical and Engineering industries. Bengalis are perhaps by

nature bad traders, which will be obvious from the increasing number of non-Bengalee shopkeepers in Calcutta, but that does not mean that we cannot succeed in trade if we want to. But that is beside the point. What I would like to draw your attention to, is this that, generally speaking, there is some peculiar quality in the intellect and imagination of Bengali middle-class intelligentsia that makes them suitable for small specialised industries which require expert technical knowledge, and which, consequently, are less susceptible to unfair and mortal competition from big industries, at home and abroad.

Inspite of their immense importance and undeniable possibilities, the actual state of the small industries at present is far from satisfactory. Though the number of such small enterprises has grown considerably, their condition, however, has become extremely weak from the effects of a fierce and organised competition launched against them by the more resourceful industrialists, both Indian and foreign. Poor, disorganised and struggling, these small industries are bravely following up their hard industrial career of continual hardship and struggle for small pittances. This miserable condition of our industries, however, is the result, not of any fault or negligence on the part of the organisers, but of foreign competition on the one hand, and Government apathy and lack of public patronage on the other. It will perhaps be

better if I briefly deal with the difficulties of small industries here.

If any one body of persons can be held responsible for the gradual decay of Indian industries, it is the Government of India whose lack of sympathy and patronage have helped, more than anything else, to kill the small and cottage industries of this country. The defective industrial policy of the Government has not only ruined the existing industries, but has also checked the growth of new enterprises. In all questions of economic regeneration and industrial development, it is the duty of the Government to take the initiative, and give impetus to indigenous industries by giving them financial help and every other kind of facilities. The Government of India have so far done very little to help the growth of Indian small industries. A very regrettable feature of the industrial policy of the Government is to look to the interests of the big industries only. The Government appear to be under the very erroneous impression that, like the progressive countries of the West, it is the large-scale producers only that make up the national wealth of India. The few facilities that the minor industries have ever received from the hands of the Government were all granted as a corollary to measures devised for the benefit of big capitalists, even though such privileges ultimately reacted against the interests of the smaller concerns.

Another marked and unfortunate trait in the industrial policy of the Government has been an unshakable faith in the manipulation of the Tariff System. • Imposition of protective tariff seems to mark the limit of the duty and responsibility of the Government towards Indian industries. I am not an anti-protectionist, nor do I want to underestimate the necessity of a high protective tariff for India at this stage of her industrial development. But at the same time I want to emphasise the fact that high customs duties alone can never develop the industries of our country. The history of economic development of the industrially prosperous countries of the West does not record one such instance.

On the contrary, nations that are now at the height of Industrial development and expansion, have been known to have reached that eminence by efficient economic planning of their industries. Long and painstaking researches, continuous and systematic investigation of all technical problems, organised purchase of raw materials at the cheapest rate, and efficient marketing of the finished goods at home and abroad—these are some of the measures which have been simultaneously adopted with a view to making the industrially advanced countries what they are to-day. If Indian industry is to stand its ground against foreign competition, more care and attention should be paid to the internal problems of increasing its pro-

ductive efficiency. Ways and means should be found out to make our production cheap, and here the State, with all the various resources of the country under its control, can render invaluable service to industry. Protection, at best, is only an auxiliary force that can work wonders when supplemented by the more important State aids in various forms, but otherwise, if left to work alone, it can only create economic distress to consumers and foster unequal distribution. For a vigorous and all-round industrial growth within the country, the Government should seriously take up the constructive part of the programme, and, in a true spirit of nationalism, should extend a helpful hand to the struggling industries of this country, by rendering them all possible help in every way. It is perhaps necessary that I should briefly deal with some of the most serious difficulties under which the small industries of Bengal are at present labouring. The particular needs and difficulties of such industries may be considered with advantage under two broad heads, *viz.*, Internal Planning, and External Protection.

INTERNAL PLANNING

(*a*) *Banking Facilities*

Financial difficulties are the rocks on which most of our industrial enterprises are finally wrecked. The financial resources at the command of our

business promoters, are extremely limited, because the organisers usually come from middle-class families with no inherited wealth hoarded by their forefathers. Somehow scraping together some money, in most cases ludicrously small, they somehow launch upon their doubtful industrial career, and go on struggling under a constant pressure of lack of funds. The ordinary commercial banks do not give them any quarter, and in the absence of any progressive industrial bank in the country, they have, in times of need, to fall back upon the only source of help, namely, the private money-lender, whose rate of interest is so inordinately high that the interest payable on the loans utilised in the industry eats up the profits thereof. But inspite of this, and being entirely without any reserve or depreciation funds they are compelled, for the maintenance of their industries, to borrow from the private money-lenders at any rate of interest and at any risk. Lack of financial facilities at economic rates of interest proves to be a ruinous dead weight on these weak industries, and this difficulty not only cripples their present activities, but often crushes them out of existence altogether. Many firms, to my personal knowledge, were forced to stop work under such painful circumstances. It is evident, therefore, that small industrial units of Bengal may never be expected to live and grow unless some remedial measures are immediately taken to give them the financial assistance they so very sorely

need. It is now an imperative duty of the Government to extend financial facilities to these poor and struggling industries. The Bengal State Aid to Industries Act, or the new step of the Government of Bengal to guarantee fifty per cent. of the capital loss of Industrial Credit Corporation, are mere eye-washes and do not serve any practical purpose I very much wish that the new administrators of this province would shift their focus of attention to these important national problems. I would suggest that the Government float an industrial loan for the purpose and raise the necessary funds to back the small industries, and the money thus raised should be placed under the control of a Trust Company or a body of good bankers, to be used for the benefit of small industries only. A lump sum grant from the Central Government, too, may be very well utilised for the purpose of providing credit facilities to the small industries. The Calcutta Corporation may also do much to help the local industries. They can levy an octroi duty on goods coming into Calcutta, and the funds they collect, may be spent for the benefit of local industries.

(b) *Central Organisation for the Purchase of Basic Materials and Sale of Finished Products*

Owing to their natural limitations, small industries have to labour under serious handicaps, both in the purchase of their raw material, and also in

the sale of their finished products. Their difficulties in the matter of purchase of raw materials are two-fold. Being scattered or disorganised, they cannot buy their raw materials from the cheapest markets of the world, and secondly, even in our own country the big parent industries are absolutely careless about the feeding of their subsidiary small industries with necessary raw or semi-finished materials at economic rates. The large protected industries of India, on which the small industries have to depend for the supply of basic materials, do not think it necessary to give any privileges to the small manufacturer who has often to pay a very high price for the raw materials. Over and above this, the small industries do not enjoy the concession freights that are given to big industries by the Railways.

In the matter of selling their goods, the small manufacturers are perhaps the worst sufferers. Want of organisation renders it impossible for the small producers to organise and extend their markets. In old times, Bengal had her own methods of marketing her products and the Howrah *Hat* is a remnant of that old system. *Hats* and the frequent fairs that were held on religious festivals served in those days as very good channels for the sale of goods produced in the neighbouring villages. Industrial Exhibitions are now-a-days trying to do the same service, but they can hardly be expected to fill the place of these old native markets.

Extreme difficulty in selling their products has greatly checked the growth of small industries. The meagre capital resources at their command requires a speedy disposal of their goods, but this has become impossible under the present conditions, owing to a complete absence of any marketing facilities. Minor industries are not able to spend that amount of money which is required to create a good market for their articles by advertisement campaign or trade propaganda. So the market covered by the small industries is very limited in scope and their sales do not leave any margin. These circumstances again do not help to build any reputation for the small industries, which may encourage the banks and private financiers to invest money in these concerns. Moreover, the majority of dealers and middlemen impose much hardship on these industries by various unfair tactics, specially by delaying payment of their bills for a long period. These long-credit terms are often forced on the industries at the point of threats, to which the poor industries are compelled to submit, because they know that they are completely under the thumb of these dealers and middlemen, so far as the sale of their goods are concerned.

In view of the difficulties briefly touched above, it is necessary to set up a State-controlled Central Organisation for the purchase of raw materials and the sale of finished products of the minor

industries. The success of our strongest foreign competitors, Japan, depends, to a large extent, on the Japanese Government's organised effort to buy raw materials from all parts of the world at the cheapest rate, and also on the organised sale of Japanese goods almost everywhere throughout the world. I would, therefore, suggest that a Central Organisation be set up on similar lines, with Provincial branches, to provide cheaper raw materials to the industries, and help them to sell their finished goods. For internal trading, the Provincial Organisations may suffice, if the different provinces work on a co-operating basis. The Central Organisation of a province should have two functions. One is to collect raw or semi-finished materials at the cheapest rate and to supply the same to the different small industries. Such a Government organisation, it goes without saying, will always buy big quantities of a particular item of materials, and would, therefore, be always in a position to bid down the prices. Besides, this State-aided organisation will enforce and extract from the protected big industries of India, *viz.*, Steel, Cotton, Sugar, etc., the very best terms and facilities in the matter of raw materials supply. The second function of the Organisation will be pooling the goods of the small producers and selling them within the province through chain stores. The Organisation should link up the different marketing centres by chain depots, and

constantly carry on propaganda for the sale of articles under their care. This work may be pushed through the Rural Development agencies, or the Co-operative Credit Societies, or even through the Police Stations in the villages. Such a State-aided organisation will at once increase the status of minor industries and will generate the confidence of the buying public in the indigenous articles.

(c) *Technical Help from the State Laboratories*

Advice in many manufacturing problems and analyses for standardisation are constantly required by small producers, who cannot afford to maintain a high-class Research Laboratory of their own. The existing institutions for rendering technical assistance to the manufacturers, *viz.*, Imperial Research Bureau, etc., have not become popular, most probably because their assistance is not easily or cheaply available. Anyway, the provinces should also be furnished with high-class Research Laboratories, and highly qualified technicians should be appointed to carry on intensive research work for increasing the efficiency and quality of production. They will also be given opportunities to introduce new methods of manufacture and new inventions, so that more industries may spring up within the country.

(*d*) *Transport*

The neglect of the Railway authorities the industrial needs of the country has, in many

instances, retarded the growth of indigenous industries. Unusually high freight charges, unwillingness to take risks of goods sent under their care, and discriminating freights are a few of the obstacles that the Railways have placed in the path of small industries. A detailed criticism of the Railway policy of the Government will perhaps be out of place here, but I cannot help mentioning a peculiar whim of the Railway authorities, and its disastrous result on one of our small industries. Some time back, the freight on mustard oil seeds was suddenly enhanced, but freight on mustard oil was simultaneously reduced. The result was that Bengal Oil Mills were pushed to the wall, because they could not compete against Cawnpore manufacturers who were able to sell their oil cheaper at Calcutta market owing to reduced Railway freight. The cost of production of Bengal Oil Mills, on the other hand, increased because they had to pay enhanced rates of charges to bring the oil seeds from outside.

(*e*) *Labour*

Labour problem in India is acquiring fresh complexities every day, but I am not going to enter into that big question here on this occasion. I would, however, like to point out to you to-day a very strange reaction of the present-day labour movement on the economic life of Bengal. A decrease in the supply of Bengal skilled labour has become very distinctly noticeable, and so far as

I have seen, it is the indirect effect of the Trade Union Movement that is now raging throughout the whole of India. The labour agitation has brought into prominence a particular set of men who are not skilled workmen at all, but who may be best described as labour leaders. Propagandists and agitators, therefore, are slowly ousting Bengali skilled artisans and workers who are generally peace-loving family men. The number of Bengali *Mistries* have gone down considerably during the last 3 or 4 years, and their places have been taken by non-Bengali workmen. This is a very bad symptom of a very dangerous economic tendency, for it may not only end in the ultimate extinction of skilled Bengali craftsmen, but may also tell seriously on the efficient productivity of the local industries. The success of minor industries requiring specialised scientific knowledge, depends very much on highly skilled labour, and the scarcity of Bengali skilled workmen will affect such industries very adversely.

EXTERNAL PROTECTION

(*a*) *Foreign Competition*

In the field of foreign competition, Japan has been creating the most pernicious rivalry with our industries. All sorts of articles from Japan are being dumped into our markets, and considering the poverty of the consumers, it is by no means unusual that the Indian consumers prefer to buy

cheaper Japanese goods to the exclusion of a little costlier India-made articles. The peculiar tenacity of the Japanese exporters may be judged from the fact that the Tariff Amendment Act of 1934, primarily meant to keep away Japanese goods from Indian markets, was rendered innocuous by numerous commercial trickeries of the Japanese exporters, and the Act failed to protect our industries from Japanese onslaught.

The fact is that we can never expect our industries to fight against foreign competition with the help of protective tariffs alone. The minor industries of India, as I have already mentioned, need careful planning and constructive re-organisation before they can successfully stand against the powerful foreign manufacturers. Factories must be made scientifically equipped, modern methods of economic production introduced, all facilities of finance, transport, marketing, etc., freely extended to them—these are a few of the many duties which the State should first take up and give effect to, for strengthening and re-vitalising the minor industries. And along with the planned programme, a policy of close economic nationalism should also be followed. A moderately high protective tariff should be imposed on all foreign articles that come in competition with home-made articles. There should be a Quota basis for the exchange of our manufactured goods for the manufactured goods of other countries.

(b) *Internal Competition*

Unfair competition, or competition on unequal terms, within the country plays no small part in pushing the small industries to the wall, and at times, it becomes as much fatal to them as foreign competition. Big mills and factories, some of which are branch organisations of reputed foreign firms, are working here as rivals of our small industries. These Indian Branches of stupendous foreign industries are the most dangerous rivals, because the capital and commercial resources at their command are almost beyond our conception. They enjoy many preferential facilities in the matter of transport and marketing, which are totally denied to small industries. Freight concessions, rebates on import duties, and other State privileges are granted to them because they can approach the Government, plead their case, and exert influence in proper quarters. The small industries, being poor, resourceless, disorganised, and very often inarticulate, are seldom able to win the favours of the State officials.

The fundamental weakness of the small manufacturers lies in their higher cost of production, and relief on this point can be given by the Government by systematic planning, as I have already suggested. The organisation for the purchase of raw materials and sale of finished goods, can

greatly help the minor industries in reducing their cost of production.

Another way of giving some relief to these industries by Government is to purchase more of their goods for the consumption of the Departments, the Railways and the Army. Government patronage in this shape will have far-reaching effects on the educated Indians as well.

INDUSTRIAL BACKWARDNESS OF BENGAL

In Industrial Development Bengal is certainly lagging behind some of the other provinces of India. What is the reason of this stagnation and backwardness ? I will try to answer that question.

The sudden quickening of industrial consciousness and activity in Bengal in the beginning of this century is a very interesting economic phenomenon, and is the resultant of a number of economic and political forces, which I will not try to analyse here. Whatever the other implications may be, the spontaneous industrial response of Bengal to new economical forces and changed conditions, clearly brings out the fact that industrial instincts are not foreign to Bengalee nature and mental constitution, and this is the point to which I would like to draw your particular attention before I go further into the subject. Let me strongly repudiate the idea, that is slowly gaining ground even among

my own countrymen, that Bengalees as a race are lacking in industrial genius and faculty.

It cannot be denied, however, that industrial attempts in Bengal have not always met with the expected success. Failures have been quite common, and, to tell the truth, more frequent than successes. These unsuccessful enterprises, viewed apart from the many attendant compensating circumstances, have perhaps been largely responsible for creating such an adverse impression, which, however, is far from the truth Bengalees, on the contrary, are equipped with all the mental and moral qualities essential for industrial success. Business failures are pretty common all over the world and among all classes of people, and if Bengalee enterprisers have met with failure oftener than success, it only means that the odds against them were too great to overcome. Moreover, it can never be truthfully said that our industrial record is marked only with abortive attempts. Instances of brilliant achievements are not rare, specially in those industries which require expert scientific knowledge and high technical skill—a peculiar characteristic of our industrialism already referred to. That the Bengalees do not suffer from any inherent intellectual or moral defect so far as the industries are concerned, will also be further borne out by historical evidences. Leaving aside the old glory still preserved in our folk-tales of ancient times, when her merchants would cross

the seven seas with their boats laden with rich merchandise, we can still be proud of the industries of Bengal as they were only fifty years back. At the beginning of the British rule in India, Bengal was famous for her arts, crafts, trades and industries. The manual or mechanical skill of Bengalee artisans and craftsmen has not been surpassed even now, and it is a great pity that just for the want of some scope and other facilities, these people are now slowly dying out in obscurity and extreme destitution.

But if the theory of our intellectual deficiency is a fiction, our industrial inefficiency is a fact. It is no use denying that most of our business enterprises have a premature death, and whatever the hidden forces may be that are thus helping to subvert our attempts, we must admit that there is some defect somewhere in our industrial activities. If, as I have tried to prove, the cause of our failure does not lie in our mental deficiency, then we must look for the reason in our method of industrial organisation. Indeed, it is not the incapacity but the incompetency of Bengalee business promoters that is really responsible for the untimely breakdown of their industrial organisations.

It may seem a little surprising at first that an intelligent race like the Bengalees should have left such a hole in the fabric of their moral constitution, and have so long allowed themselves to suffer from the limitations which they might have easily

made up. But some knowledge of the peculiar character of Bengal industries and the circumstances under which they grew, may help to clarify the point. If we go back to the early history of the awakening of industrial consciousness in Bengal, we will see that, in Bengal, the industrial movement came in the wake of an intense political fermentation. To the young idealists of those days money-making was not the end of their industrial endeavours, and home-made articles were wanted because it was thought humiliating to use British goods. Industries, in short, grew in Bengal, not so much out of economic necessity as from political propaganda, and Bengalees did not seriously take up industry as an end in itself but only as a part of the political movement. The result of such an unpractical mental attitude has been that Bengalee industrialists, while fully alive to, and conversant with, the technical and scientific parts of the work, were usually very careless and indifferent to the practical management of the industry. This characteristic of the early pioneers has not wholly died out of the Bengalee blood. They are very good technicians and experts in scientific knowledge, but they are seldom good organisers.

This brings me to what I consider to be the greatest drawback in the way of our industrial success. Industrial enterprises in our country are launched, more often than is desirable, by men who have

absolutely no experience in the line they take up. The Managing Agency system of business organisation has been a very fruitful source of evils in this respect. The usual practice adopted in starting a business in our country is that a body of men, having some command over a little money-capital, style themselves Managing Agents, and issue a tempting prospectus in the hope of attracting shareholders. These Managing Agents, for all we know, may not have the least, or may have a very meagre, idea of what they are actually going to do and how. Without any training or any previous experience in organising and conducting such industrial undertakings, they enter into their industrial career simply because they have nothing else to do. The business promoters of this kind often forget that industrial enterprises can be made successful only by trained and experienced men. Lack of necessary training and experience on the part of our enterprisers is the chief cause of our failure in the field of industry, and I would exhort all of you, who intend to take up the industrial career, to prepare yourselves fully before you go to enter into a definite scheme. Make yourselves fit first and properly equipped with the necessary knowledge and training in the particular industry you want to take up, and then, when you have acquired the secrets of the manufacture, you can launch upon the actual enterprise. I have often been approached by many anxious fathers,

who want their sons to take up *some* business, and I have always tried to point out to them the fallacy in their proposal. To take up " some " business is not the right mental attitude for youngmen who want to take up manufacturing work. They must know definitely what they are going to do, and which industry they are going to work for. There are many among our present business organisers who have started industrial enterprises simply because they could not find a berth in any other path of life, and after being baffled in their attempts to secure a job, they fell back upon industry as the last alternative. This is the reason why we come across so many incompetent men in the field of industries. We should fully realise that industry, like all other careers and professions, needs a particular course of training and education, without which a man can never hope to become a successful industrialist.

It is necessary, for this purpose, that the present system of imparting general education to our youngmen should be changed. Boys who intend to take up industry as their career must finish their general education by the time they are twenty years old. After that, they should join some manufacturing works to equip themselves for the future enterprise. The Government, the University, and other public institutions, of cousse, should help them in this matter, so that they may have proper opportunities for industrial training and

education. In this way, we can put a stop to the growth of indiscriminate business enterprises by anybody and everybody, and I think it is the duty of the Government to see to this matter. There should be some legislation preventing inexperienced and untrained persons to come forward as Managing Agents and start an industry. Government should create a Board of Experts, to whom all prospective industrial schemes should be submitted, and who would consider which of them may be allowed to be launched, and whether the organisers are reliable persons and are equipped with the necessary qualifications to become able pilots for the new ventures.

Another serious defect, not uncommon in our business enterprisers, is that we often start our work before the necessary funds are within our control. Inspired with a fond hope that money will be coming when the work is begun, we take our plunge with the meagre capital we may possess at the time, and thoughtlessly run into heavy expenses, such as building construction, maintenance of an elaborate office, etc. The result almost invariably is that, by the time our factory is ready for work, we suddenly find that we have no money to run the show any longer. Those of you who are interested in industries must have noticed that many industries, started originally by Bengalees, have subsequently passed into the hands of non-Bengalee financiers, just at the time, too,

when the industry had only begun to yield an income. The explanation, after what I have said above, is perhaps obvious. Having spent the little fund it had to begin the work with, the industry had become heavily indebted for its running cost to some other capitalist, who, in the long run, very easily became the proprietor of the whole concern. I very much wish that the business *entrepreneurs* of our country should give up this dangerous game of chance. My definite advice is: Do not start work till the whole of the estimated capital is raised. When the prospectus has been issued and the shares are being sold, do not spend much in maintaining a big office. "Lie low till the time comes" should be the motto of every one who wants to make his enterprise a suceess.

Industrial career should be started as much early in life as possible. Starting a business organisation at an advanced age, with the burden of a big family on the shoulders, is simply courting failure.

Our ease-loving nature, also, is, to some extent, responsible for our failure in industrial enterprises. If we have some money or property to fall back upon, we do not want to take the trouble of working seriously for our concern. Neglect and indifference will naturally creep in where there is a sense of security, and these we must always carefully guard against.

Another deplorable tendency found in our

business promoters is that they want to become richer all on a sudden by some short-cut to success. This kind of mentality breeds dishonesty and speculative spirit, which are very harmful for an industrial organiser, who must have patience, courage, and also an immense capacity for taking pains.

Absence of a correct legal constitution has led many business organisations to ultimate ruin and disruption. Everything goes on well so long as the organisation does not yield any income, but as soon as the firm becomes paying, there is misunderstanding and difference of opinion between the partners, which, in the long run, ends in a court of law.

Lavish personal expenses, wasting time in idle talks and amusements in the company of friends, carelessness in keeping accounts—these are some of the other foibles of our nature that tend to interfere with our success in industrial undertakings.

I would request you to think over the little points I have mentioned above, and try to see for yourselves how far they are true.

In the course of my speech, I have more than once criticised the Government for their apathy and indifference, and have put the whole blame of our industrial backwardness on the State. Of course, in all such matters of national importance, the reponsibility of the State is the maximum, but the " consideration should not make us forget our

share of the responsibility." The Government alone are not to blame for the miserable condition of our small industries. Lack of public sympathy has, in no small degree, been responsible for stifling the industrial spirit of Bengal. If the small industries of Bengal received the sincere patronage of the people, they might have done without the help of the Government to a considerable extent. The buying public of Bengal, I must admit with shame and regret, have shown very little sympathy towards the industries of their country. I have already said that Bengal is mainly a consuming province. Our better standard of life requires many and sundry articles for consumption, very few of which, however, are produced in Bengal, and herein lies the secret of our gradual impoverishment. Other provinces of India, not to speak of foreign manufacturers, have long been making fat profits at Bengal's cost, but time has come to put a stop to this unceasing outflow of Bengal's money. Since the days of the Swadeshi movement, Bengal has been the dumping ground of the cloth manufacturers of Bombay, who have reaped rich profits from the political agitation in Bengal. The same thing can be said of the sugar industry in present times. Most of the big industries are situated outside Bengal, and money is always flying out of our pockets to fill the coffers of other people. This may sound like very narrow provincialism, but I cannot help remarking that,

provincialism or not, Bengalis should henceforth make it a principle to buy Bengal-made articles as far as possible. The consumers of Bengal should be educated, by necessary propaganda, to understand the full implications of this principle. Public sentiment and opinion should be worked up, and a "Buy Bengali" movement should be started to give proper effect to this principle. I request you, our youngmen, to take up this movement and spread it throughout the length and breadth of Bengal. Teach the people that, by paying for what Bengal does not produce, they are only helping to dig their own graves.

To the criticism that this spirit is anti-national, I will only say this : Bengal has for long thought in the terms of all India, and the result has been that every one has made some money at her expense, while she has become poorer than ever. She has done much, lost much, and suffered much for India as a whole, but now she must think about herself. Everyone has the right of self-protection, and if, in exercising that right, we happen to hurt the interests of others, we think we cannot help it. Bengal must become a self-satisfied economic unit, if she is to live in this struggle for existence.

I have finished. I do not know how far I have been able to enlighten you on the problem of Small Industries of Bengal, nor whether I have succeeded in giving you any sound advice. But

whatever it may be, I would like to believe that I have at least given you some food for serious thinking. I want you to know the abject poverty and misery of the people of Bengal, and feel how helpless, weak and poor we have become. The Bengalees, I know, are a great race, but their extreme poverty is slowly freezing all the genial currents of their soul. I have told you that the economic condition of Bengal was not always like this. She was once the richest province in India, famous for her material prosperities. The gradual impoverishment of this once-flourishing race is a great national tragedy, for, if the Bengalees were not so much fettered by their economic distress and disabilities, they might have been able to contribute more towards the advancement of our country both political and economic. But we need not lose heart. I have great faith in Bengali genius, and I know that they can achieve anything they set their heart to.

We will certainly conquer our poverty, and the signs of the times go to strengthen my hope. Poverty in Bengal is an economic anomaly, and we are going to prove it sooner or later.

A LIST OF INDUSTRIES THAT CAN BE STARTED BY OUR YOUNGMEN WITH 2 OR 3 YEARS OF TRAINING WITH A CAPITAL NOT EXCEEDING Rs. 5,000

1. Battery, Torch, and Torch Battery.
2. Stove Making.
3. Electric Switch, and Regulator.
4. Spectacles Frame.
5. Thermos Flask.
6. Safety Razor and Blade.
7. Pin, Gem-Clip, Nib, Clip.
8. Carbon Paper.
9. Electric Casing, Block, Picture Frame.
10. Lacquering.
11. Brass fittings for Doors and Furniture.
12. Book-binding and similar jobs.
13. Jewellery Work.
14. Gold- and Silver-smith's work—Fancy goods as Toys and Utensils.
15. Brass fittings for Files.
16. Printing Press.
17. Watch and Clock Repairs.
18. Spring Hinge.
19. Hosiery goods, like Socks, Mufflers, etc.
20. Glass Chimney for Metal Lamps.
21. Electroplating.
22. Brass and Aluminium Utensils with the help of a Press.
23. Looking Glass.
24. Bell-metal Goods.

25. Brass and Bell-metal Ornamental Work.
26. Tin Boxes with the help of a Press.
27. Leather Suit-case, etc.
28. Umbrella and Walking Stick.
29. Plumbing.
30. Small Pottery Work.
31. Bucket.
32. Steel Trunk, Cash-box, etc.
33. Small casting.
34. Manufacturing Pump.
35. Collapsible Gates.
36. Mill-weight articles, *e.g.*, Pulley, Plummer Block, etc.
37. Musical Instrument making.
38. Radio and Gramophone Machine repairing.
39. Furniture making.
40. Small Oil Engine.
41. Parts for Rice Mill.
42. Weighing Balance.
43. Structural Workshop (small).
44. Fountain Pen and Stylo Pen—Manufacture and Repair.
45. Manufacture of Surveying Instruments, Prismatic Compass, staff for cradle, Table for above, Measuring Chain, Pin, etc.
46. Photography and Painting.
47. Dentistry.
48. Surgical Clinic.

49. Surgical and Scientific Instruments making.
50. Electric Fan, etc., Repair.
51. Ice Factory.
52. Brick, Tile and Decorated Tile.
53. Motor Car and Cycle repairs.
54. Iron Furniture.
55. School Instruments, Maps, etc.
56. Adjustable Pencil—of variegated types, Metallic Tape, Cloth Tape, etc.
57. Surveying Instruments Repairing.
58. Weigh-bridges of different capacities.
59. Typewriting Machine repairs.
60. Calculating machines—manufacture and repair.

A LIST OF SUNDRY ARTICLES REQUIRING A SMALL CAPITAL EXPENDITURE

1. Zarda and Kimam.
2. Biri.
3. Snuff.
4. Cheroot.
5. Prepared Tobacco.
6. Various kinds of Mashla for Betel leaves.
7. Sugar and Palm Candies.
8. Lozenges.
9. Bread, Loaf and Biscuit.
10. Cake, Sweet Bread, Bun.
11. Indian Sweetmeats—Sandesh, Rosgollah, etc.
12. Hotel and Restaurant.

13. Fried Rice, Pea, Almond, etc., in Vacuum tins.
14. Washing Soap.
15. Tailoring.
16. Metallic Button.
17. Braid, Tag and Wick.
18. Cane and Wicker work,
19. Sodawater and Fancy Drink.
20. Ice-Cream.
21. Toy Making—metal, wood and clay.
22. Hat Making.
23. Hair Dressing.
24. Washing, Cleaning.
25. Metallic cap for Sodawater bottles.
26. Jewellery case, Spectacles case, etc.
27. Football, Hockey and other sporting articles.
28. Horse-shoe nails, etc.
29. Office Stationery :—
    (*a*) Envelope.
    (*b*) Blotting paper and pad.
    (*c*) Pen, inkpot.
    (*d*) Pencil, etc.
30. Card Board articles.
31. Sewing thread.
32. Oil Paper.
33. Fancy Silk Ribbon.
34. Hair Pin and Clip.
35. Decoration for idols.
36. Confectionery and Condiments.

INDUSTRIAL OPPORTUNITIES IN BENGAL

By S. C. Mitter

Director of Industries, Bengal

I am indeed very grateful to Dr. Mookerjee for affording me this opportunity of coming in your midst and addressing you on the subject of industries—a subject on which you have had already a series of lectures delivered by persons who are practical businessmen in their various lines. I have been asked to deliver the last of this series of Career Lectures which have made an impression on the public but I am afraid I have hardly anything new or informative to add to the knowledge and materials which those addresses have presented to you. They have spoken with authority based on years of experience in practical spheres and their counsels and suggestions will be, I am sure, very valuable to those of our youngmen who are to-day looking ahead for suitable careers. I have no pretension to any such practical experience but in discharging the responsibilities of my office I have had to think a lot about and deal with many of the practical problems that confront our industries to-day and in connexion with the execution of a number of industrial ventures which the Government launched in the interests of the detenus. I have had to face and tackle many problems from

which experience I might as well tell you something that would possibly be useful to our youngmen in some way or other. This consideration alone impelled me to accept your invitation which you so kindly extended to me.

Vocational Guidance Necessary

Since the inception of these Career Lectures I have felt that these have a great utility for our youngmen. In this country we are only gradually realising that there is an urgent need for organising suitable institutions which may impart the necessary vocational guidance to our students. It is a common drawback of our educational system, as admitted on all hands, that while youngmen have ample opportunities of receiving high acedemic education, there are hardly any organisations to assist them with timely suggestions as to the avenues of employment in which possibilities exist and for which they have to acquire special training or education. It is very late in their academic life in most cases that they realise with mortification that they should have thought about a definite career long ago and exerted their efforts to that end. This late realisation and a sense of frustration is no less than a tragedy in the lives of most of our students and when we think of the time, energy and intellect of our young generations that are wasted in this way, we cannot but feel

sad, for if such human materials could be utilised in the best possible way and to really productive ends, the problem of unemployment would not assume such sinister proportions.

With due deference to the remarkable achievements of this University in the sphere of higher education, I may state that our educational system is on the whole planless, for it has not been as yet shaped in terms of our social and economic needs. It is this absence of a plan attuned to the economic needs of the society that has been a misfortune for our youngmen and is increasing the number of unemployed by leaps and bounds with very sad consequences on the society as a whole. It has been well said by a great educationist that "the destructive effects on culture and the irrationalizing consequences of permanent unemployment for society cannot be underestimated for the changes in the attitude of the educated classes naturally extend their influence beyond these circles. The most essentially negative effect of this unemployment consists in the destruction of what one might call "planning for life." Such planning, it goes without saying, is a very important element for the rationalization of man and the enriching of the possibilities of individuals.

It is, therefore, gratifying to note that the Calcutta University by organising these Career Lectures have made a sort of beginning in the matter of providing the young folks with vocational

guidance. There is no doubt that our efforts in this direction should be systematic and comprehensive enough, for this is an age of occupational planning and economic determinism. It is true that no perfect planning is possible except in a Totalitarian State, but by careful selection of careers for our young folks according to individual aptitudes at the right time and by the dissemination of adequate information regarding existing openings. such can be done in order to prevent the unnecessary waste of time, energy and resources of our youngmen No doubt the universal craze for higher education is now gradually dying out in the changing circumstances of the society but it remains for us to see that adequate opportunities are created for imparting the necessary vocational and technical training so that the young people may be diverted into those channels where possibilities exist and in which their individual attainments may have their fullest play.

My forerunners in their discourses have dealt with many industries, their problems and future possibilities and have also indicated in what way and to what extent our youngmen may find a career in them. These suggestions will no doubt inspire many young minds with courage and ambitions and I can no better conclude this series of Career Lectures than by sincerely believing that the basic object of these lectures, namely, to inculcate on the young minds the need and utility of business

careers in the interest of national prosperity will be fully realised.

Bengal's Future Possibilities

It may be pertinent here to consider that the possibilities of our industries have a large bearing on the scope for employment of youngmen. My forerunners have dealt with this subject in some details and indicated the directions in which there is room yet for fresh pioneers to achieve results. From their considered views and from the statistical position of many of the industries as related to our economic needs, it seems that the possibilities of future expansion of our industries, though not quite considerable, are not at the same time negligible. In certain industries at least, such as cotton textile, sugar and medium-sized industries, potentialities may be fairly large.

In our discussion about the industrial progress of our province, our premises on conclusions are not always based on concrete facts, with the result that we have learnt to belittle our achievements and assume a pessimistic view of our future possibilities. The wealth of materials which have been furnished by the discourses of my predecessors would easily point out that our achievements are not meagre indeed although the fact is there that much of the capital invested in some of them has been supplied by non-Bengali enterprisers ; subject to this, if only statistics can indicate anything, it

would be found that Bengal's industrial position *vis-a-vis* other provinces and India as a whole is not negligible; rather Bengal may claim to be the most industrialised province in the country. The following figures would in this connexion be quite significant :—

	1920-21	1925-26	1930-31	1933-34
BENGAL				
Percentage of the total number of companies working in India at the close of the year	45·6	46·2	52 3	49·6
Percentage of the total volume of paid-up capital working in India at the close of the year ...	44·3	38·5	39 5	44·2
BOMBAY				
Percentage of total number of companies working in India at the close of the year .	18·5	15·1	14·3	12·6
Percentage of total volume of paid-up capital working in India at the close of the year	35·7	36·8	34·5	32·1

Total paid-up capital of all companies at work on the 31st March

Province	1920-21	1925-26	1930-31	1934-35
	Rs. (Lakhs)	Rs. (Lakhs)	Rs. (Lakhs)	Rs. (Lakhs)
Bengal ...	72,90	106,46	111,59	133,20
Bombay ..	58,83	102,07	97,74	96,52
Madras ..	9,28	12,33	14,98	15,19
U. P. ..	3,08	12,78	11,47	8,46
Punjab ..	3,54	2,80	3,66	4,34

From these figures two clear facts would emerge, namely, (*a*) that the total number of industrial ventures working in Bengal is the largest of all the provinces, and (*b*) that the total volume of paid-up capital working in Bengal is the largest of all provinces, although the average paid-up capital for each company in Bengal is much less than that in Bombay. The latest statistics reveal that the average paid-up capital for each company in Bengal is only 2·9 lakhs while that in Bombay is about 9 lakhs. This only shows that the sizes of Bombay business concerns are, on the whole, larger than those of Bengal, indicating thereby the strength of Bombay business units.

As I have mentioned already, Bengal's industrial progress has been achieved to a considerable extent by outside capital and enterprise. You have been given certain details in the discourses of any predecessors. I would not enter here into any discussion about the advantages or disadvantages that have flowed from the situation. It may suffice here to emphasise the fact that Bengal's lead in the industrial matter has not contributed to the material prosperity of the people to the extent it should have done. The low standard of living of the people, the low level of *per capita* provincial revenue and expenditure—all point to this fact. The reasons are too apparent to need any elucidation, but in order that the children of Bengal may one day reap the real fruits of their own endeavours, they ought

to be up and doing. The happy position indicated by statistics does not really reflect the credit which Bengalees would have deserved. A vicarious sense of pride is all that Bengal may feel on account of the progress that the statistical position reveals. It is a sort of reflected glory which does not glorify anybody but rather it has the effect of darkening Bengal's economic life. Our objective should be to create opportunities and to equip our youngmen in such wise that they may grasp those opportunities bravely and efficiently and utilise them for the maximum benefit of the society.

Company Failures in Bengal

While our efforts ought to be directed to the creation of an urge in the young minds for business careers, the mistakes of the past should also be guarded against. Idealism is no doubt a good thing, but in the sphere of practical business mere inspiration does not ensure success. Ripe experience, technical knowledge, sound judgment and sincerity of purpose are some of the factors that make for business success. In the past many Bengal ventures failed, because of the lack of experience and technique. A look at the figures of company failures in our province will indicate the sad consequence.

Company Failures in Bengal

During the quinquennium ending	Number of companies liquidated.	Paid-up capital. Rs. (Lakhs)
1905-6 ...	60	51,1
1910-11 ...	111	1,05,7
1915-16 ...	162	1,60,4
1920-21 ...	187	1,61,6
1925-26 ...	414	8,73,7
1930-31 ...	412	1,7,70,0
1935-36 ...	779	25,69,7
Total ...	2,125	56,42,2

Since 1900-01 the wastage of capital as indicated by the figures is indeed colossal, for our resources are not so plentiful that we can afford to fritter away so much of our capital. This is mainly due to inefficient management, lack of industrial technique and absence of planned development of industries. It has been a common experience in the past that if some people had attained success in some lines, capital and enterprise often flowed into them without considering at all whether there were possibilities for further expansion and whether the industrial equipment and capital with which the ventures were being started were at all adequate. Such indiscriminate flotation of companies was responsible to a large extent for the wastage

of capital as revealed by the figures. Young that we are still in our experience of industrial undertakings, we are often tempted to embark upon ventures in order to reap handsome dividends at a very early date at the instance of a few successful pioneers. When such expectation does not materialise, the enthusiasm and urge for action is taken away. Then again there is a section of people who seem to believe that industries once embarked upon will fetch handsome fortunes in no time.

Quick Results in Business Not to be Expected

It is against this impatient expectation for quick results in industrial ventures that I would like to sound a warning to my young friends here and to the wider public. There is going on an undisguised and consistent propaganda for creating an industrial-mindedness among our countrymen who have all along evinced an indifference to business careers. I do not say that this propaganda is not desirable, but while I desire very much the evolution of this mentality among our students and general public, I should at the same time invite their attention to the fact that success in business career is not always so repaid or quick as to justify the expectations that are often cherished before embarking on such a career. There is no doubt that the possibilities of success in industrial or

business lines are often very large, provided that they are pursued with requisite tenacity and discretion, but what is essential is that our expectations should always be conditioned by the special limitations that individual business lines may offer. It is very necessary to save impatient expectations from being frustrated over the rocks of early failures or insufficient results. Financial success, as every business man should know, does not come automatically, for its attainment is dependent on so many factors both subjective and objective that even the most careful calculation based on considerations of relevant data and possibilities fails often to guarantee such success. That being so, it stands to reason to expect that while we should inculcate upon our youngmen to shake off their notions about secure services under Government or other agencies and develop a mentality for business and industrial careers, we must at the same time adjust their idealism and enthusiasm to the waiting and struggling which may attend their operations. This is not to discourage industrial ventures, but it is only to caution them against an early disillusionment of impatient expectations.

If we glance through the records of the company promotions and company failures through the past few decades, this conclusion is irresistably brought upon us. A careful study of the individual cases and balancing of the results have

enabled me to frame certain conclusions which I like to place before you to indicate how the different categories of industrial ventures yield financial success.

A statistical analysis of the dividend earnings of several hundred companies in two different decades was carried out by the Industrial Intelligence Section of my Department and the main conclusions arrived at are as follows :—

	After how many years dividend declared (Average).	Size of dividend (Average).	After how many years dividend declared (Average).	Size of dividend (Average).
Banking, Insurance, Loan Companies.	5	3%	3½	11%
Transport, Transit.	6	3½%	5	4%
Trading and Manufacturing.	5	4½%	4	6%
Mills and Presses	3	11%	2	16%
Tea and Planting	5	5%	4½	8%
Mining and Quarrying.	4	6%	2	10%

It will be evident from these average figures that financial returns have not come to the concerns very early. Many of the industrial concerns have taken as many as 10 or 15 years to earn a dividend while many others have not as yet earned a dividend at all. The averages relate to

those companies only which after years of losses or of just paying their way have reached the stage of earning a dividend. The number of the companies which are still struggling and waiting to reap profits is much larger than the companies which are now earning a dividend. So from the averages we need not feel enthused, for while the number of successes is large, the number of failures has been much larger.

In placing these average figures before you I do not mean to suggest that our outlook in undertaking an industrial venture should not be at all optimistic, but what I want to emphasise is that our expectations should not exceed the bounds of probabilities. Keeping this in mind and having full confidence in ultimate success, if our young-men proceed with their ventures there is no reason why they will not be amply rewarded in the long run.

Conclusion

I shall be failing in my duties, if I do not refer to the Appointments Board and its energetic Secretary, before I take leave of you. I have been watching with very great interest the activity of the Appointments Board ever since its inception, and I am very much impressed indeed with its useful activity in regard to our University men. I have heard from Mr. D. K. Sanyal, how he has been

proceeding to realise the aims and objects of his Board, and I have no hesitation that he has been moving in right directions. The ways of pioneers are always difficult but I believe that the Board has enough strength, drive and resources to overcome them and ever forge its way ahead.

I thank you once again, the Hon'ble Mr. Vice-Chancellor, for having given us the honour of your presence and you, gentleman, for the patient hearing that yuu have kindly given me.

APPENDIX

D. O. letter No. 583, dated Calcutta, 14th June, 1936, from Syamaprasad Mookerjee, Esq., Vice-Chancellor, Calcutta University, to Sir Edward Benthall, President, Bengal Chamber of Commerce

I am taking the liberty of approaching you on behalf of the University of Calcutta in your capacity as President of the Bengal Chamber of Commerce on a matter of vital importance affecting the future welfare and prosperity of this province. You must be aware of the problem of unemployment among educated Bengalees to-day. You must also have noticed the various criticisms which are levelled against the present system of education. I have no desire to enter into a detailed discussion of this large question which is not free from difficulty and complexity. I shall only state that the University fully recognises that one of the defects of the present system of commercial, scientific and technical courses of studies is that they are not in close touch with organisations controlling trade, industry and commerce without whose help and co-operation a better provision for practical training is not possible.

With regard to the scientific and technical courses, students are trained in workshops and laboratories. But we are anxious to make better provision for practical training of our young graduates which would help them to apply with larger success the knowledge already obtained by them to various lines of technical or industrial development.

A similar observation applies with much greater force to our B.Com. teaching.

The remedy does not lie solely in our hands. It lies in establishing a close and harmonious relationship between the University on the one hand and representatives of trade, commerce and industry on the other.

General Scheme

The scheme which I am placing before you contemplates, in the main, provision for practical training to selected students of the University in different branches of trade, industry and commerce for a limited period on certain approved conditions. Such training will relate either to technical lines, open to graduates in science or to non-technical lines open mainly to graduates in commerce. The scheme must be introduced gradually and with caution. My object is not to secure a few additional jobs for the young men of my province. The training is intended primarily for enabling our youths, so equipped, to start their own businesses on a small scale or to be associated with business houses and trades in a manner which will be advantageous to both parties.

Change of Outlook

At the present moment the outlook of the average Bengalee youth permits him to think of nothing else as his possible career but some paid job which will keep him attached to his desk. He is often reluctant to take the trouble or risk of doing anything else. A spirit of enterprise and adventure is lacking, perhaps due to want of confidence, which again is not always the fault of any individual. It is partly the fault of the system under which he has been brought up which offers him no real opportunities and partly the resultant effect of his environments and surroundings. It is a happy sign of the times that

ideas are slowly changing and everyone realises the perils of the existing situation. I do not think that a general change of mentality or outlook can be altered by one stroke of the pen, neither do I think that it is capable of being achieved through the agency of the University alone. At the same time the University has to play its part. It can never be the function of University to find employments for all its alumni. But the University should give or arrange for them a training which will be a help and not a hindrance to them in the pursuit of various vocations of life.

Commerce Graduates

As I have indicated already, I attach greater importance to the provision of practical training for our commerce graduates than for those who have obtained degrees in science. With regard to the latter, though there is ample scope for better training which will be of benefit to them and to their country, the fact remains that the University has in recent years produced brilliant young men who, equipped with technical skill and knowledge, have rendered themselves useful in various industrial concerns. But on the commerce side, the number of such Bengalee graduates is strictly limited. It is, therefore, essential that some drastic steps should be taken for initiating a new outlook among our young men whose eyes have to be turned to fields of activity which by habit and tradition are at present not followed by them.

I

The principal training which we would like our commerce graduates to be given should enable them to earn their living by becoming small traders, under-brokers,

buyers and sellers on commission. The training may be given in one or more of the following:—

(1) stock-exchange, (2) jute—(*a*) loose jute, (*b*) pucca bale (baling), (3) jute goods, (4) seeds, (5) sugar, (6) shellac, (7) coal, (8) tea, (9) hides and skins, (10) piece-goods, and (11) hardware.

The exact nature of the training and its period will naturally depend on the particular line selected. Details may be worked out after the general scheme has been approved.

II

I recognise it may not be convenient to give training to the commerce graduates in the general offices. Even if such training could have been given on a large scale, the idea does not appeal to me, inasmuch as such training will ordinarily qualify the apprentices for appointment to clerical posts. The aim of the scheme which I am proposing is to check the growth of this tendency among our graduates. At the same time, if a small number is trained for such work in some of the offices, the latter may perhaps get better equipped men for their own purposes. Training as apprentices may however be arranged for in banks which will equip them with specialised knowledge and qualify them for the management and administration of banks whose number has in recent years increased appreciably.

III

It has been the recent policy of some well-known business houses in Calcutta to offer posts in higher administrative grades to selected Indian youths. Such appointments, as have been explained in your recent letter to the

Government of Bengal, are not many in number and they by themselves can never solve the problem which forms the main subject-matter of my letter to you. But I believe it may be possible to come to an arrangement whereby you may recruit a small number of brilliant young Bengalees for your offices, not as clerks or as members of the subordinate staff but as officers, probationers or secretaries, who if successful will have the opportunity of further promotion. Such appointments, if made after consultation with the University, will offer a wider field of choice and will inspire the confidence of the public.

Summary re: *Commerce Training*

I have noted above three different directions in which commerce graduates may be offered training under your guidance. First, there are the apprentices who will learn the practical working of a particular line of trade or business; secondly, there may be some who will receive training in administrative work in general offices and particularly in banks; thirdly, there may be a few who will be chosen as officers and probationers and will be trained for higher responsible duties.

30 Students per year for 5 years

I may emphasise here that the scheme which I have outlined above is not intended to be, nor is it capable of being brought into effect all at once. I have suggested possible lines which may open new paths of venture to the Bengalee youth. But we must move slowly. To start with I shall be satisfied if we can arrive at an arrangement extending over a period of five years on an experimental basis during which 30 University students will be trained every year on approved lines. They will ordinarily be

B.Com. graduates but in view of the nature of the work to be done for the first kind of training indicated above, we may have a few selected under-graduates who may be specially qualified for such work. It is imperative that the men selected should be of the right type, prepared to face the struggle and hardship which the careers we have in view are bound to impose on them. On this will depend largely the success of the scheme. In the selection of apprentices, the advice and opinion of your representatives will have a large voice.

Technical Training

With regard to the technical side, we have two classes of students passing out of the University College of Science, obtaining their M.Sc. degrees. We have those who have passed in Pure Physics and Pure Chemistry, and also students taking Applied Physics or Applied Chemistry, trained respectively in the principles of Electrical Engineering and the basic principles of Chemistry as applied to industrial processes. It has not been found possible, however, to familiarise our students with the actual materials used in industrial operations or to train them in large-scale operations of industrial processes so as to awaken in them a real interest in industries and to enable them to take up industrial vocations. For instance if students of Electrical Engineering have one year of practical training in any of the Power Supply Companies, they will be in a position to realise the actual methods used in the production and distribution of electrical power. This may help them to take up small-scale power production and distribution schemes in different parts of Bengal. Similarly, in Chemistry one may consider the industry of oil-pressing and oil-refining to be of vast importance and

the training in an industrial concern in this field will be of immense help to our advanced students.

Possible Lines

Some of the different lines in respect of which practical training may be arranged for are indicated below:—

(1) Power supply and power distribution, (2) the use of machine tools in manufacturing operations, (3) oil pressing and oil-refining, (4) paper manufacture, (5) jute manufacture, (6) air conditioning, (7) welding, (8) refrigeration, (9) aluminium products, (10) accoustical engineering (including telephone, etc.), (11) illumination engineering, (12) manufacture of rubber products, (13) shellac and shellac products, (14) flour milling, (15) tobacco manufacture and testing, (16) paints and varnishes, (17) fertilisers, (18) railway engineering (including block-signalling and electric traction), (19) fireclay and stoneware products, (20) steel manufacture, (21) sugar manufacture, (22) coke and its bye products, (23) gas manufacture, (24) soap manufacture, (25) leather manufacture, and (26) drugs.

20 Apprentices in Science

Here again let me say at once that it is not suggested for a moment that training may immediately be organised on all the lines indicated above. I have only suggested here, as I have done with regard to commercial training, the possibilities of a closer co-operation between the University and the various firms and industrial concerns. I shall be satisfied if, to begin with, arrangements are made for the practical training of 20 graduates every year for an experimental period of five years.

50 in Both

We shall thus have 50 specially chosen apprentices trained every year, 30 on the commercial side and 20 on the technical side. If 50 per cent. of them succeed, we shall have 25 Bengalees every year who have passed out of their University with a satisfactory education, both theoretical and practical, and have been specially trained for useful careers in commerce and industry. One may expect that they will regard themselves not as individuals aiming at personal success but as messengers of a new era of hope and progress. Inspired by a keen sense of public duty they will gather together their experience and resources and lend a helping hand to deserving young Bengalees in turning their attention to new fields of useful activity.

University will also Help

I have so long discussed how the University graduates may be benefited by a closer co-operation between you and the University. But in the scheme we should also provide how industrial concerns and business houses may in their turn profit under this new arrangement. We have our staff in various subjects in commerce and economics, in science and technology and we shall be prepared to examine occasional problems which may be forwarded to us by you for critical investigation on approved conditions. I am not entering into the details of this part of the scheme but I may assure you that the University will be glad to be of service to you in such manner as may be found practicable. The University will do so in the firm belief that it is thereby placing the knowledge and experience, now mainly confined to its class-rooms, libraries and laboratories.

at the disposal of a wider public leading to the ultimate good of the country.

Selection of Apprentices

If the principle of co-operation between the University and Bengal Chamber of Commerce is accepted and the lines are generally settled, we shall have to set up a machinery through which the apprentices will be selected. We shall have a Special Committee which will contain representatives of the University and the Chamber. I am not asking that any and every person nominated by the University should be accepted by you. You are welcome to put our men to the test and select only those who have a reasonable chance of profiting by this method of training. The details of the conditions of selection may be settled later on.

Changes in Syllabuses and Lectures

I may state here that the University will be glad to consider proposals for changes in the syllabuses of study and methods of instruction which may be found necessary for improving the course. Special courses of lectures may be organised by the University to be delivered by men in active touch with commerce and industry.

Subsistence Allowance

It will be necessary to grant some allowances to the apprentices who may be selected. This will enable the University and the firms to which they may be attached to maintain control over them. This will also provide them with a small subsistence allowance during this period.

The University will undertake to find the necessary funds for the purpose. Fees on a reasonable scale may also be charged from those who can afford to pay. The conditions on which the allowance will be granted to each may be discussed later.

Conclusion

I shall now bring my long letter to a close. The proposals made above are not to be regarded as final. They will form a suitable basis for a full and frank discussion. Let us recognise the supreme need for making a definite beginning, however small. As I have already said, the establishment of a closer relationship between the business and trading community of Calcutta and University is capable of vast possibilities of increased benefit to both parties. I sincerely hope that under your able and sympathetic guidance we shall succeed in coming to a satisfactory arrangement with your Chamber. It is my intention to approach the Indian firms and business-houses after we have ascertained from you the manner and extent of the co-operation that we are prepared to extend to each other.

I suggest that after you have considered this letter and discussed it with your colleagues we may have a small conference. The conference may draw up an agreed scheme which will be ultimately placed before the University and the Chamber fcr approval.

D. O. letter, dated 1st December, 1936, from Sir Edward Benthall to Syamaprasad Mookerjee, Esq., Vice-Chancellor, Calcutta University

After a long delay due to frequent and prolonged absence from Calcutta and preoccupation with other matters, I am now in a position to reply in some detail to your letter of June 14. I have given the subject matter of your letter considerable thought and have had the benefit of several discussions both with yourself and with my colleagues on the Committee of the Bengal Chamber of Commerce.

2. I would first observe that the Committee of the Bengal Chamber of Commerce must of necessity regard the question of unemployment not solely from the point of view of the Calcutta University but also from its wider aspect. The Chamber have had for many years a close connection with the Government Commercial Institute; they are being pressed by the Anglo-Indian and Domiciled European Community and by the schools : to provide similar openings for young men of these communities, and they have to consider cases of Indians trained in Europe and in Universities outside Bengal. They have further to take into account the problem of those unemployed who have not had the advantage of higher education. In so far however as the scheme which we have discussed together is part of a definite policy on the part of the premier educational establishment in Bengal to turn the minds of the young men of the Province to the vital necessity of a change of mentality towards the problems facing them in the future, your scheme has our whole-hearted support and, within the limits imposed by the difficulties of following out the course which you propose, the Committee will be only too pleased to co-operate with you.

3. With regard to the primary objects of your scheme, namely, to teach the youth of the Province the necessity of self-reliance and of striking out into fresh avenues of industry and commence on their own account instead of depending upon the patronage of existing firms in supplying them with posts in clerical and other grades, we are wholly in accord with you. In welcoming your courageous action, I cannot do better than quote to you certain extracts of a letter which we addressed to the Government of Bengal earlier in the year in response to a request that European firms might take more Bengalis into employment as covenanted or uncovenanted officers :—

> So far as the engagement of Bengalis on higher grades are concerned, it must be remembered that the annual rate of recruitment of such staff is not very large and that many such posts are now-a-days recruited from applicants with special commercial training and technical qualifications, while a certain number of others are not unnaturally filled by promising employees from the United Kingdom and other branches of the firms concerned. Nevertheless it is unquestionably the case that firms are making an increasing effort to employ well-qualified Bengalis in posts of higher responsibility ; and in many cases their confidence is being rewarded to the mutual benefit of both parties.
>
> The bulk of the posts in industry for which recruitment is open and for which Bengalis might qualify are however those of a practical nature which require two qualifications, the ability to control labour and the experience which comes from having done the manual tasks which the labour themselves are accustomed to perform. The two

qualifications are inter-dependent as labour do not willingly accept the control of men who do not know as much about the practical work in hand as they do themselves. But even here there are signs that individual men have realised this prime necessity and have set themselves out to acquire the knowledge, self-reliance, initiative and stamina to control men carrying out technical processes—in brief to make themselves indispensable—and the Chamber Committee believe that an extension of this idea will in course of time fit more young men for employment in industry. To achieve results on any broad scale however a drastic change is necessary in the established traditions of the people—to which the University Commission of 1919 drew such pointed attention; and this can only be brought about by the political and educational leaders of the people themselves.

The Chamber Committee do not consider that the present state of unemployment is so much due to the lack of opportunity afforded to the young Bengalis in business openings as to the lack of training in the essentials of business success instilled into them in their homes and colleges In this connection it may not be out of place to refer to the efforts which—with the full support of the Chamber—are now being made by the Calcutta University authorities to improve from a practical and vocational point of view the curriculum of the Faculty of Commerce. This is a step in the right direction but the Committee believe that sturdy determination, initiative and self-reliance—qualities which are not taught by the mere passing of examinations—will achieve more than patronage to which so much importance is at present attached,

and that young men should be trained rather to command business than to solicit it If such a change of attitude—so different from that of the Conference whose remarks are under review—can be engendered, Government can rest assured that it will meet with the cordial support of members of the Chamber. In their opinion the fulfilment of this policy is one of the most urgent tasks before the new autonomous Government for they believe that such a reorientation of view is one of the greatest of all necessities if Bengal is to advance to her rightful place in the economic sphere in India.

The Chamber Committee in the light of further reflection can only endorse their previous statement and wish you all success in your effort to bring about these results, which constitute a common aim between us and the University authorities.

4. To deal first with the case of the B. Com.'s trained at the University, the proposal which you make for securing for your students a practical training is a reasonable one if it can be put into effect. It is a proposal which, as you are aware, has been made by the Sapru Unemployment Committee in the United Provinces and the evidence given before that Committee that the B.Com. training was of little value in the practical work of carrying on a business, is on the whole supported by our own experience.

From the business point of view, if we are engaging young and quite inexperienced men for general training in our own business, we generally prefer youths who have received an all-round education aimed at the building up of their character and of their powers of deduction and of independent thought rather than those who have received

a superficial education in the theory of commerce and economics. In our opinion the technical knowledge can best be acquired by practical experience, combind with theoretical work acquired in the normal course of training or at night schools. In so far as the B, Com. training is intended to impart the general education, we are unable to make any comments as we have insufficient knowledge of the methods of the University.

It follows that we do not on the whole consider that the knowledge acquired in the B. Com. course is likely to be of any great value in itself to those taking the course except for a very limited number of posts such as that of a company secretary. The ordinary theoretical knowledge required in carrying on a business is easily acquired in the course of learning the particular business itself and that this is the case is demonstrated by the success of men who have not had the advantage of any theoretical training.

We fear that the above remarks will be discouraging but we should be rendering you no service in refraining from making them. We believe on the other hand that there are other avenues which will lead to less disappointment and along which we can render you more definite assistance.

We appreciate that you will not desire to drop the B. Com. course altogether, but we think that a very careful selection will have to be made of the young men to be trained with an especial eye to the probable openings available.

5. As to the question of assistance by established firms in affording opportunities for practical training, there are considerable difficulties in treating a B. Com. as different from anybody else in the office.

If, as you suggest, the man is merely taken for training purposes, it is obvious that he cannot be given access to knowledge of a confidential nature. This applies particularly to Banks and so forth where customers' accounts have to be treated with the utmost secrecy. Firms are always reluctant to take in such people as they naturally like to recruit staff with the object of obtaining many years of loyal service to the mutual satisfaction of both parties, nor is it reasonable to ask firms who are carrying on a strictly business concern to take any interest in the training of persons to whom they have no obligation and whom they do not intend to keep. We are of the opinion therefore that firms would prefer to recruit specially selected men recommended by the University with the object of taking them permanently into their organisation rather than following the procedure you propose.

The number of such vacancies are however strictly limited and the placing of a very few men is all that can be expected as most firms recruit fully trained men for specialist purposes. Judging by the businesses of which we have experience the number of posts available for untrained and untried men in a general office is extremely small.

6. The practical problem of giving training is also a serious difficulty as unless a boy is prepared to work his way up from the bottom as is the custom in Great Britain making use of his superior education to thrust his way to the top, he will be handicapped by having to learn largely from those of his own station in life who have by application acquired a profound knowledge of the details of the business though their own education and opportunities may prevent them rising beyond a certain level. We would strongly recommend B.Com.'s not to hesitate to start at the bottom and we understand that this wholesome

principle has been insisted upon in the Reserve Bank. Any man with the natural aptitude will be able to make his mark for promotion or will acquire knowledge which will be of benefit to him in starting his own business.

7. The conclusion must therefore regretfully be that owing to the practical difficulties rather than a lack of desire to help we can be of little assistance in the training of B. Com.'s beyond affording the facilities which are already available and which I will touch upon later when discussing an Appointments Board.

8. In affording the young men of Bengal however further opportunities to learn the technicalities of trade we believe that we can do a great deal more.

After discussing the matter in Committee, we are prepared to circularise firms to ascertain to what extent they are prepared to co-operate in introducing apprentice schemes or in otherwise providing facilities for young men trained in the Calcutta University to acquire practical training. In the circular we shall not of course exclude the possibility of providing for the training of B. Com.'s in offices and it may be that we have over-estimated the difficulties but we think that greater opportunities may be available in mills, press-houses, etc., where youngmen will have a greater opportunity of learning without inconvenience to the working staff.

Knowledge acquired in such a way can be more easily turned to account by those trained. If for instance a knowledge of Jute-pressing is acquired, it would enable young men, in due course, given the other qualities of character necessary, to fulfil the object which we have both stressed and which I have referred to in my opening paragraphs, namely, to set up on his own whether as a "pucca baler" or as a supplier of loose Jute to the press-houses or to the mills. But while we can assist in

teaching a man the technical and business side of such work, we cannot teach him how to make money out of venturing on his own unless he has the natural aptitude for it. And while we can make openings for acquiring a good working knowledge of this work, it is for the student himself to take the fullest advantage of these opportunities by bending his energies to the work of assimilating such knowledge, as it is on the success of such assimilation by his own efforts, that he will be able to use the knowledge so gained to his own future advantage.

9. We are aware of course of the subsequent difficulty of financing individual ventures, and, while we would comment that it is first and foremost necessary for the richer Bengalis to incur greater risks than is usual in the class of people who normally prefer investments in land, housing or Government securities, we understand that the Government of Bengal are from recent announcements fully alive to this question and are prepared to lend sympathetic support to the provision of finance for small industries.

10. In order however that any special effort by the members of the Chamber may be successful, it is necessary that the University should simultaneously set up an Appointments Board able to give the fullest and most impartial advice on the candidates available.

We are sure that such a body will be welcomed by business houses as a means of abolishing the constant resort to personal influence which takes up so much of the time of business men. It will also be fairer if the Board is properly constituted to the students themselves as recommendations will be made entirely upon merit.

We are of opinion that this body should be appointed entirely by the University who should take full responsibility for the recommendations made and that business

men should not be co-opted, except perhaps to help with advice at the very commencement of the Board. The firms will themselves of course desire to make the final selection in pratically all cases, but if the Board's early choices are satisfactory, it will earn increasing confidence among the business community.

The Board's duty will be to acquire and maintain touch with all likely employers, not only in the business world. Continuity will therefore be necessary and the personnel of the Board will especially in the initial stages be of the utmost importance. Such Boards have been established in the Universities of Oxford and Cambridge for many years, and their success has been found to depend almost entirely on the personality and ability to judge character of the secretary, on whom the bulk of the work falls. The experience gained by such a Board would in our opinion be of high value to the University in establishing precise information regarding the number and nature of openings falling vacant annually for graduates, and give the data necessary to calculate, in the interests of the students, the number of entrants who should be admitted to the various curricula. The Chamber will make available to the Board the result of its appeal to the firms for support to the scheme.

11. In reviewing the situation in the above terms, I do not wish, nor do my Committee wish, to be thought to be dogmatic in any way and we are open to conviction upon any alternative method of procedure. We can only assure you that within practical limits we are desirous of doing all we can to help in alleviating the grave problem of middle-class unemployment in Bengal and shall be glad to discuss the matter further with you or your representative or with the Board when it is appointed.

D.O. letter No. 720, dated Calcutta, the 3rd December, 1936, from Syamaprasad Mookerjee, Esq., Vice-Chancellor, Calcutta University, to Sir Edward Benthall; President, Bengal Chamber of Commerce

Many thanks for your letter of 1st December, which reached me yesterday. I am writing this to clear up the issues and to find out exactly the nature of the understanding that we have arrived at. Shall I be right if I summarise the result as follows :—

(1) The Chamber will be willing to help us 'within practical limits.' This is your general attitude.

(2) Practical training for B. Com.'s is not feasible ; at any rate, it is extremely doubtful.

(3) You propose to circularise firms to ascertain to what extent they are willing to co-operate in introducing Apprentice Schemes or in otherwise providing facilities for practical training.

You do not say anything specifically about practical training in technical lines. You may remember this was specifically mentioned in my letter.

When do you propose to issue this circular letter ? I believe nothing can be done until we are in a position to know what response the firms will give, or shall we take it that there will be a reasonable response to the circular you propose to issue ?

(4) You suggest the formation of an Appointments Board which will have the following major functions :—

(*i*) To remain in touch with all employers and not with the Chamber alone ;

(*ii*) to suggest names of probationers and assistants, when required ;

(*iii*) to select the apprentices for practical training in firms which may be willing to co-operate.

I am anxious to know how much agreement we have arrived at. We should be very definite about this for I am anxious to start work with as little delay as possible.

It will be desirable at this stage to publish the correspondence that has passed between us, for both my letter and your reply deal with the problem fully and frankly and aim at finding out the means of a solution.

But before I do so, I would like to come and see you once so that the situation may be fully clarified. With this object in view, I am writing this letter to you.

I am leaving for Nagpur to-night and shall return to Calcutta on Monday morning. May we meet on Wednesday morning at about 9-30 or 10 a.m. at your office ?

Thanking you once again for all the trouble and interest you are taking.

D. O. letter No. 74-1937, dated Calcutta, 8th January, 1937, from Sir Edward Benthall, President, Bengal Chamber of Commerce, to Syamaprasad Mookerjee, Esq., Vice-Chancellor, Calcutta University

I regret that I have not replied hitherto to your letter of December 3, but hope that now that the holidays are over we can make further progress.

In drafting my letter of the 1st December I had in mind that it was as well to set out in full the nature of the difficulties which employers are faced with, in order that there should be no misunderstandings on the general

problems before us. But now that we have both of us expressed our views on the principles, I agree with you that the way is clear to enter into closer discussions with the object of taking some practical steps.

With regard to your numbered points, I have the following comments to make :—

1. The Chamber is most desirous of helping you within practical limits.
2. Practical training for B.Com.'s appears to my Committee to present many difficulties, but in circularising the firms I shall ask them to consider giving training to B.Com.'s if they feel that it is practicable. Others may be more optimistic than the Committee.
3. The intention is to circularise the firms to ascertain particularly what practical training can be given in technical lines. I have prepared a circular to all firms within the Chamber enquiring what openings for practical training they can offer. This has been approved by the Committee and will be sent out immediately.
4. You have correctly summarised our views concerning the Appointments Board, which is, I think, an essential corollary of our scheme for assisting you.

As to publishing the correspondence which has passed between us, I do not think it is necessary or desirable to do this at the present time. From my experience it will only result in a flood of applications for posts from individual students. These later will be passed over to the Appointments Board but the latter does not at present exist. It will be a pity to raise the hopes of the public only to find that unforeseen obstacles hamper a full reali-

sation of the scheme, while I expect that as soon as publicity is given, there will be a number of other applications to the Chamber for similar co-operation which we shall have to take into consideration. On the whole therefore I think it is desirable to make more progress before we agree what form of publicity should be given to the scheme.
